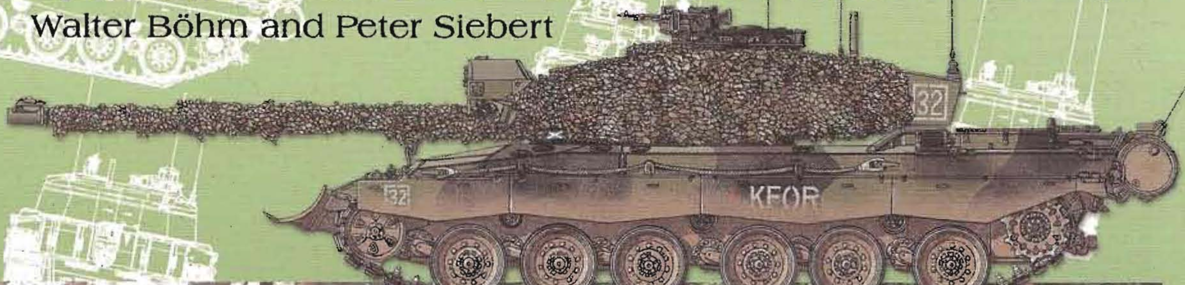
MINI COLOR SERIES 7505

CHALLENGER 1 & 2

Spearhead of the British Royal Armoured Corps

Walter Böhm and Peter Siebert



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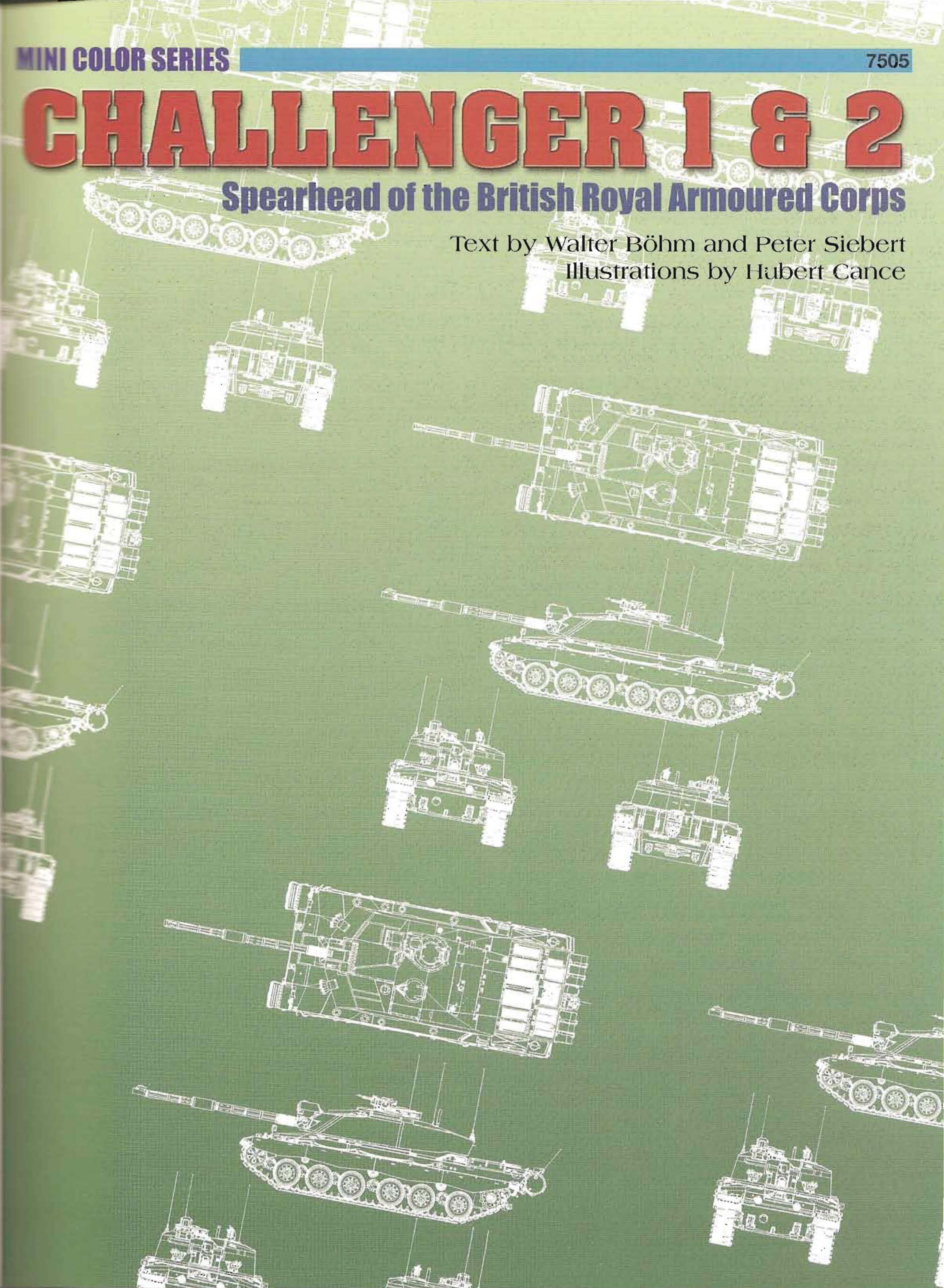
Text by Walter Böhm and Peter Siebert
Illustrations by Hubert Cance



Introduction

The British experience in the development and fielding of main battle tanks has a long tradition and can be traced back to the different campaigns of World War One. From July 1916 and the battles on the Somme river and near Cambrai, the British General Staff gained a lot of experience, beginning with the deployment of the first main battle tank, the Mark 1. The British named this new weapon system the "tank", a term that became synonymous for all subsequently built armored tracked combat vehicles all over the world.

Today the tank is one of the main players on the 21st century battlefield, representing a highly mobile, armored and well-armed weapon system like the Challenger main battle tank. Modern tanks have enough punch and firepower to detect the enemy, attack and destroy him, support other combat elements, and cooperate with them in a modern combined arms warfare scenario.

Development of the FV4030/4 Challenger 1 MBT

The interesting history of the FV4030/4 Challenger main battle tank began in 1971, when Iran ordered 1,300 new MBTs from the British government. The FV4030 project would be a modified Chieftain MBT, and the project received the name "Shir Iran" (Lion of Persia).The first batch of 187 FV4030/1 MBTs was delivered to Iran in 1976. But the FV4030/1 Shir Iran was still a Chieftain with modified components such as an automatic gearbox, upgraded mine protection, additional shock absorbers, and extra fuel capacity.

The next step was the FV4030/2 Shir Iran 1, with an improved hull with more space to accomodate the new Rolls Royce engine. The first prototypes of this model were demonstrated to Irani officers in 1977. Because there were some technical problems with the new TN-37 gearbox, the production line was stopped. At the same time development of the FV4030/3 Shir Iran 2 continued. This version received the newly designed turret with the top secret Chobham sandwich armor. The technical problems of the Shir Iran 1 were solved and the production line reactivated in 1978, but with the fall of the Shah of Iran, all contracts were cancelled in 1979.

The Royal Jordanian Army adopted a portion of the contracts, and under the name "Khalid MBT" (FV4030/2), between 100 and 300 vehicles were delivered to Jordan. For the Jordanian requirements, the Khalid was equipped with a modernized fire control system (IFCS) and a day/night version of the No.84 sight.

With the fall of the Shah of Iran and the changeover of power to the revolutionary government, the contracts for the Shir Iran 2 MBT (FV4030/3) were also cancelled. Only a few trial vehicles left the production lines. After this, the British and West German armament industry made an agreement of cooperation for the development of an MBT 80/Kampfpanzer 3 project. Increasing costs and ineffective two-line development made the project worthless, however, so it was cancelled in the late '70s.

But the British Army still needed a replacement for the Chieftain tank fleet, and British industry received no export orders after the cancelled Shir Iran contracts. This prompted the British government to safeguard employment, to buy the FV4030/3, and to introduce it into service for the British forces.The general configuration of Shir Iran 2 MBT was taken over, and only slight modifications were necessary to adopt the tank to the European theatre.

This improved version of FV4030/3, with its hydropneumatic suspension, was given the code name "FV4030/4 Challenger". On the production-line Challenger MBT, the night vision system was no longer mounted on the turret roof (like the prototypes had), its location being changed to the right side of the turret. This considerably reduced the overall height of the vehicle. Produced by the Royal Ordnance Factory in Leeds, the first Challenger 1s were delivered to the British Army in 1983. The Royal Hussars, based in West Germany, were the first armored regiment to be equipped with the Challenger 1 MBT.

In the 1980s there were plans to equip seven tank regiments with Challenger 1 MBTs. The price for one new tank was two million Pounds Sterling in 1987. By January 1995, the British Army had 372 Challenger 1 MBTs in operational deployment.

Turret and Weaponry of the Challenger 1 MBT

The Challenger 1 is armed with the Royal Ordnance L11A5 120mm rifled gun. This weapon proved itself well during long years of use in the Chieftain MBT. The gun barrel is fitted with a fume extractor, a muzzle reference system and a thermal sleeve. The rifled gun can fire a wide range of ammunition, including APDS-T, APFSDS-T, HESH, HESH-practice, and smoke WP.

The turret of the Challenger 1 is of welded construction and is protected with the Chobham sandwich layer armor. This most advanced armor provides protection against today's anti-tank weapons. The four-man crew has two turret-mounted 7.62mm machine guns for self-protection, for air defense and for use against soft-skin targets. Five smoke dischargers are mounted on each side of the turret for additional defense.

Hull and Power Train of the Challenger 1

The hull of the Challenger 1 is of welded construction with a conventional layout of the driver in the middle of the front, the turret basket in the mid-area, and the power train on the rear. The hydropneumatic suspension and a better power-to-weight ratio give the tank good agility while traveling on streets and going cross-country. This is one of the main advantages of the Challenger 1 over the Chieftain MBT. The heavy 62-ton Challenger 1 is powered by a Perkins Condor 12-cylinder diesel engine with 1200 bhp. The regular high speed on streets is up to 56 km/h (35 miles), but during training the tank crews can push their Challengers up to 70 km/h (44 miles). The hull is 9.87 m (32 feet) long, but with the gun in combat position its length is 11.55 m (38 feet). The Challenger's overall height is 3.04 m (10 ft) and its overall width is 3.52 m (11.5 ft). The tank can ford rivers up to 1.07 m (3.5) deep without preperation.

Variants of the Challenger 1 – TOGS

In addition to the advanced mobility, effective Chobham armour, better reliability, and easier maintenance of the Challenger 1's new power train, the TOGS sight system is one of the major innovations of the MBT. TOGS stands for Theramal Observation Gunnery System. With this system, the commander and gunner can detect, observe, track, and engage targets no matter the light or weather conditions. The system is completely passive, so observation cannot be detected by the enemy and the tank's position is not revealed.

The TOGS is divided into two major components: the Thermal Surveillance System (TSS) and the Gunnery Sighting System (GSS). With the TSS, all objects that are hotter or cooler than the background can be detected. The main element of the TSS is the Thermal Imager Sensor Head (TISH). The other major part of TOGS is the Gunnery Sighting System (GSS), which creates a visible picture based on all data from TISH and other sources. The commander and gunner both have individual displays to "see" the computer-created picture.

Evolution of the Challenger

When the Challenger 1 was introduced in 1983, the TOGS was still under development, so the first tanks were fitted with the TOGS barbette on the right side of the turret but with nothing inside. The Challenger without the TOGS was called Challenger 1 Mk.1. When all these tanks are fitted with the disposable TOGS system, their name gets changed to Challenger 1 Mk.2. Tanks produced later that came with TOGS from the production line are also named Challenger 1 Mk.2. The final production model of the Challenger 1 had some improvements in the internal layout and the ammunition stowage compartment to better protect them when hit. This last batch is called Challenger 1 Mk.3.

Challenger Armored Repair and Recovery Vehicle CRARRV ("Rhino")

With a combat weight of 62 tons, the Challenger 1 is one of the heaviest tanks in NATO's inventory, too heavy for the Chieftain ARRV recovery vehicle. In 1985, the British government orderd 30 new recovery tanks based on the Challenger chassis. Royal Ordnance Leeds and Vickers Defence Systems were chosen to build these vehicles.

The first CRARRV trial vehicle was tested in 1987, and in 1989 the line production for the CRARRV began. Right before the end of the Gulf War, 12 CRARRVs were deployed. They proved their reliability and utility during recovery and maintainance operations with broken-down vehicles on the Kuwati front line.

The CRARRV can offer both maintenance and recovery for all vehicles in the inventory of the British Army. The standard equipment on the vehicle includes a 52-ton hydraulic main

produced by Atlas that can lift a complete powerpack from Challenger 1 or 2. There was a total order for 80 CRARRV and Vickers Defence Systems delivered the last vehicles to t British Army in 1993. Now the vehicle has the official name "Rhino".

Operation "Desert Sabre": Challenger 1 in the Gu War (1990-91)

During the Cold War era, the British Army Challenger armored regiments prepared to defend against a suspect aggressive action by Warsaw Pact forces in the lowlands northern Germany. After the fall of the Berlin Wall and t weakening of the resolve of the former Soviet Union, this ta became obsolete.

The Challenger 1 underwent its trial by fire during t ground war in the Iraqi-Kuwaiti desert during the Gulf War 1991. After the Iraqi invasion of Kuwait, the Britis government decided in October 1990 to transfer the 7 Armoured Brigade, which was based in northern Germany, the Saudi Arabian desert. The 7th Armd. Bde. contained tw Challenger 1 regiments: the Royal Scots Dragoon Guar (Scots DG) and the Queen's Royal Irish Hussars (QRIH). The was also one mechanized infantry regiment in the briga equipped with Warrior armored personnel carriers a additional combat support elements.

The British units were to reinforce the U.S. Marine Cor units. The primary duty of the 114 Challenger 1s from Scots D and QRIH was to protect the Saudi Arabian border against possible Iraqi advance. Later the 4th Armoured Brigade w also redeployed from their bases in Germany to the desert. Th 4th Armd. Bde.'s main strength was the 58 Challenger 1 MB in the 14th/20th King's Hussars.

Before the ground offensive and in expectation of house-t house fighting in Kuwait City, the Challenger 1 was supplie with the Chobham add-on armor panels along the side skirts an Explosive Reactive Armour (ERA) blocks on the glacis pla and lower front hull. The 4th and 7th Armd. Bdes. were divide and reorganized into battle groups.

On February 24, 1991, Challenger 1 Mk.3s from 1st (UK Armd. Div. crossed phase line New Jersey on the eastern flan of the VII (US) Armored Corps. The goal of the advance was t crush an Iraqi mechanized brigade, and by midnight the attac had succeeded. The Challenger 1 MBT proved itself worthwhil despite the poor conditions for tank-versus-tank combat. Whil fighting in darkness and rain against a hard-fighting and mobil Iraqi enemy, the British forces were sometimes firing their gun less than 500 meters from the enemy. The next day th Challenger 1s from 14th/20th King's Hussars – part of the 4t Armd. Bde. deployed to the south – continued the advanc against the intensive resistance of the entrenched Iraqi 52n Tank Brigade.

On their way north along the Kuwait-Basra highway, the 1s

Infantry Division. During the "100-Hour War", Challenger tanks took part in the destruction of 300 hostile main battle tanks and an unknown number of armored vehicles. No Challenger was hit by Iraqi gun fire or anti-tank missiles. It was reported that a Challenger knocked out an Iraqi tank with its first round at a distance of over 5,100 meters (5,574 yards). For use against Iraqi APCs, bunkers and older MBTs, the Challenger crews mainly selected the HESH rounds, which explode into a large fireball when they hit a target.

There was a total of only 24 weakened Challenger powertrains, which were quickly changed by the CRARRVs and their crews. The British Challenger 1 MBT really displayed its reliability and utility during the ground war in the Iraqi-Kuwaiti desert.

Development of the Challenger 2 Main Battle Tank

The Royal Scots Dragoon Guards was the first armored regiment in the British Royal Armoured Corps to receive 38 Challenger 2 MBTs. On June 30, 1998, the first new tank was handed over to this unit in Bergen-Hohne, Germany.

The development of Challenger 2 can be traced back to the year 1988. A total of nine trial vehicles were built. Based on British Army requirements, a new tank was requested. It had to be up to date as far as armor, mobility, firepower, and fire control technology, as well as easy to maintain. The tank also had to be manned by the best educated and most well-trained crews.

In addition, the British Army requested that the tank be equipped with an up-to-date training and simulation system. The newly created simulation system, the Precision Gunnery Training Equipment (PGTE), is an effective base for an individual training program focused on the needs of the crew. The PGTE is a computer-based interactive system with virtual reality and multimedia elements.

During the development of the Challenger 2, the British Army worked closely with the people in the industry. In this way the faults of the Challenger 1 and the experiences of the Gulf War could influence the design of the new MBT. The British forces requirements focused on the following main points:

High firepower
High reliability
High agility and cross-country capability
Easy handling and operation
Readiness under bad conditions

Hull and Power Train of Challenger 2

The Challenger 1 hull was modified for the Challenger 2. A hydropneumatic suspension, fully automatic gearbox, and a 1,200 bhp Perkinson 12-cylinder diesel fuel engine give the Challenger 2 high mobility. The usual two 200-liter (53-gallon) fuel barrels mounted on the rear of the hull increase the range of the MBT by an additional 70 km (43 miles). Like the Challenger 1, the Challenger 2 is fitted with an integrated water heater for the crew's meals and water for tea.

Challenger 2's Turret and Armament

The heavy armored turret is of newly designed welded construction and uses the Chobham armor technology. The main weapon is the new easy-to-handle 120mm L30 Charm Gun, which has a maximum distance of 9,000 meters (9,837 yards). In addition to a wide range of ammunition, the new British two-piece ammunition (charge and round are two seperate parts) can be fired. The modern fire control system supports the crew and combines all data from the thermal sight, the laser range finder, weather data, the vehicle's position, etc. The commander and gunner have independent sights.

The Challenger 2's production line began in 1992. Under good conditions, its maximum cross-country speed is 64 km/h (40 miles) with a range up to 450 km (280 miles). The Challenger 2 even has an air-conditioning system for its four-man crew. With a combat weight of 64 tons, it is now the heaviest tank in NATO's arsenal. The British Army will receive a total of 386 Challenger 2 MBTs by the year 2002.

Challenger 2E

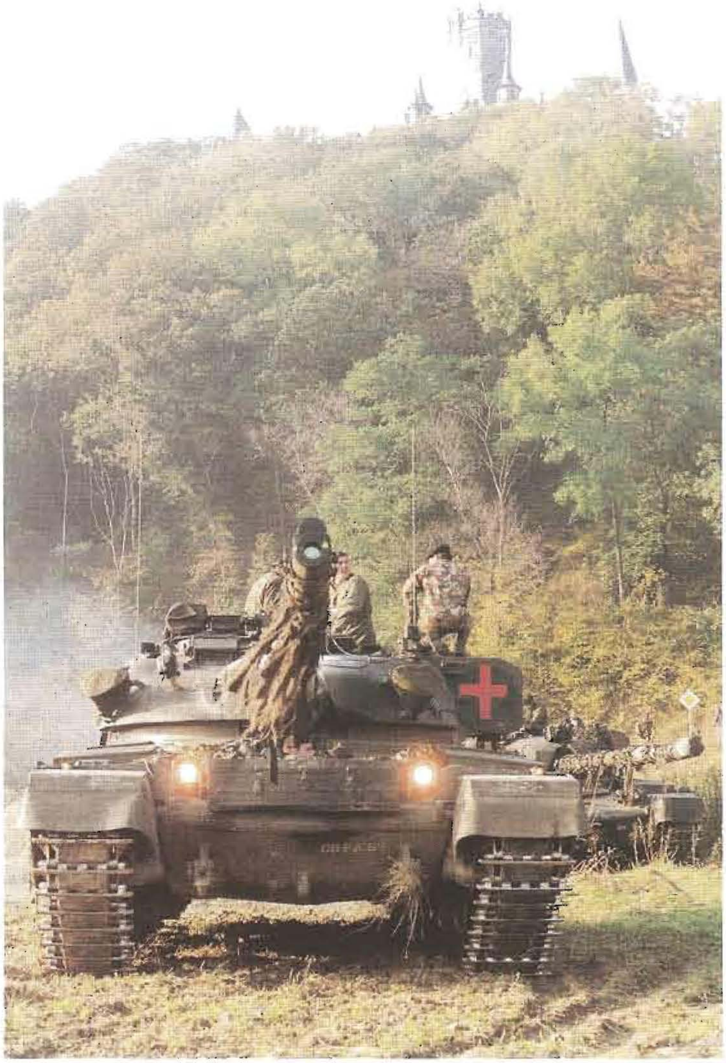
For export purposes, Vickers Defence Systems offers a Challenger 2 with a few modifications under the name "Desert Challenger" or Challenger 2E (Export). The main improvement is the new power train with a 1,500hp-strong MTU 883 turbocharged diesel fuel engine, an updated version of the well-proven German Leopard 2 engine. A German RENK transmission completes the new power train. French manufactured sights and an American fire control system are other elements of the Challenger 2E.

The Middle Eastern country of Oman ordered a batch of 38 Challenger 2Es. Other countries such as Greece, Quatar and South Africa are also interested in this tank.

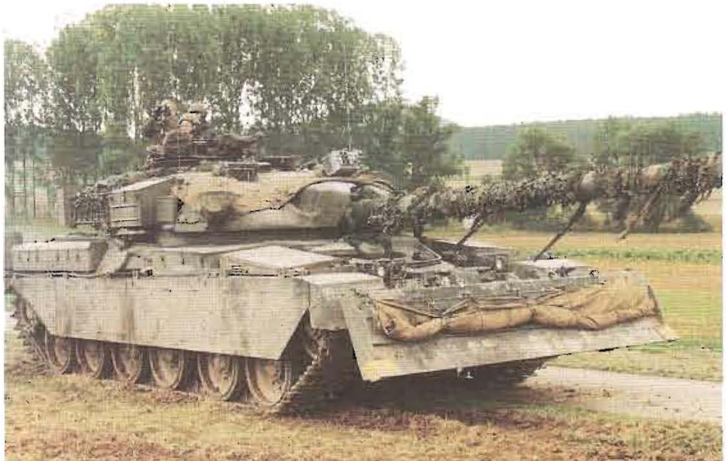
The Royal Armoured Corps (RAC)

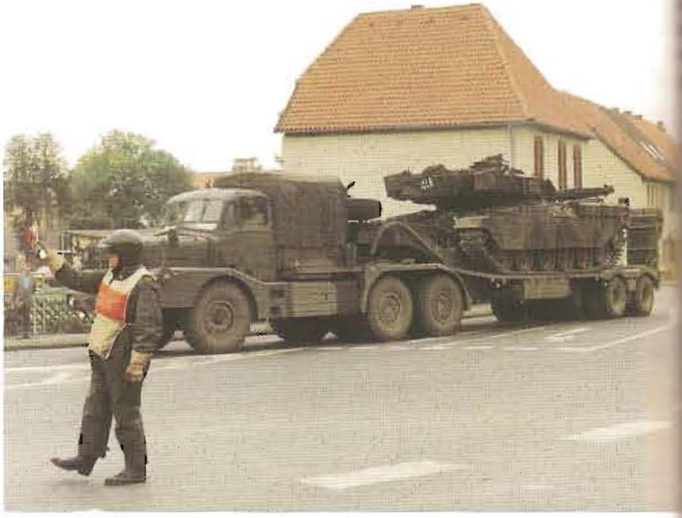
The British Royal Armoured Corps (RAC) was formed more than 60 years ago by merging the Cavalry Regiments and the Royal Tank Regiments. The units of the RAC made their contribution to the end of the Cold War by fighting in the Gulf War, keeping peace in Bosnia and Kosovo, and supporting civil authority at home in Northern Ireland. The RAC, which provides the tank force to the British Army, is today composed of eight Challenger 1 and 2 regiments (all Challenger 2s after 2002). Apart from the Royal Tank Regiment, which was formed in WWI and given the special task of fighting armored vehicles, the regular element of the RAC is provided by the former Cavalry Regiments. In 1998, the RAC ordered eight armored regiments with Challenger 1 and 2 MBTs – six based in Germany and two in Great Britain. The names of the RAC Challenger 1 and 2 Armored Regiments are:

1st The Queen's Dragoon Guards (QDG)
The Kings Royal Hussars (KRH)
The Royal Scots Dragoon Guards (Scots DG)
The Royal Dragoon Guards (RDG)
The Queen's Royal Hussars (QRH)
The Queen's Royal Lancers (QRL)
The 1st Royal Tank Regiment (1 RTR)
The 2nd Royal Tank Regiment (2 RTR)

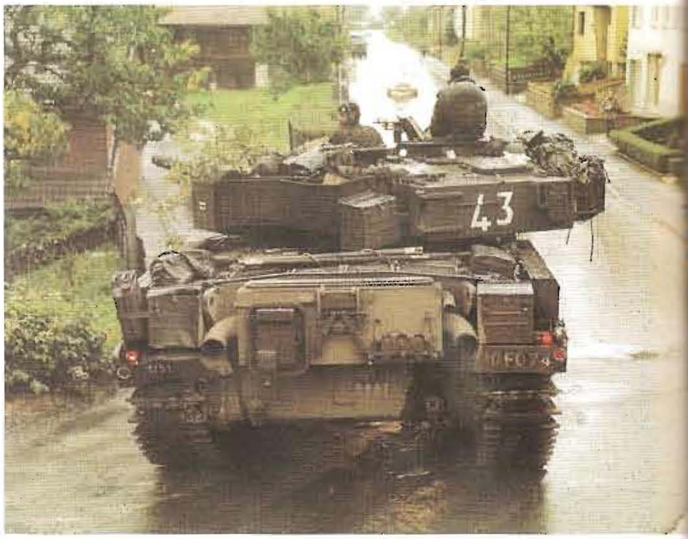


Change is the only thing that is constant. This axiom applies to both old and modern military technology. Today both are history. The main goal of the design of the Chieftain MBT was for the tank to survive combat against Warsaw Pact tanks. Both the turret and hull were of single-piece cast contruction. This Chieftain Mk.7 with Stillbrew armor is parked at the base of a cliff below the venerable Marienburg castle on the Leine River near Hannover during Exercise "Keystone 87". (Eckhard Uhde)





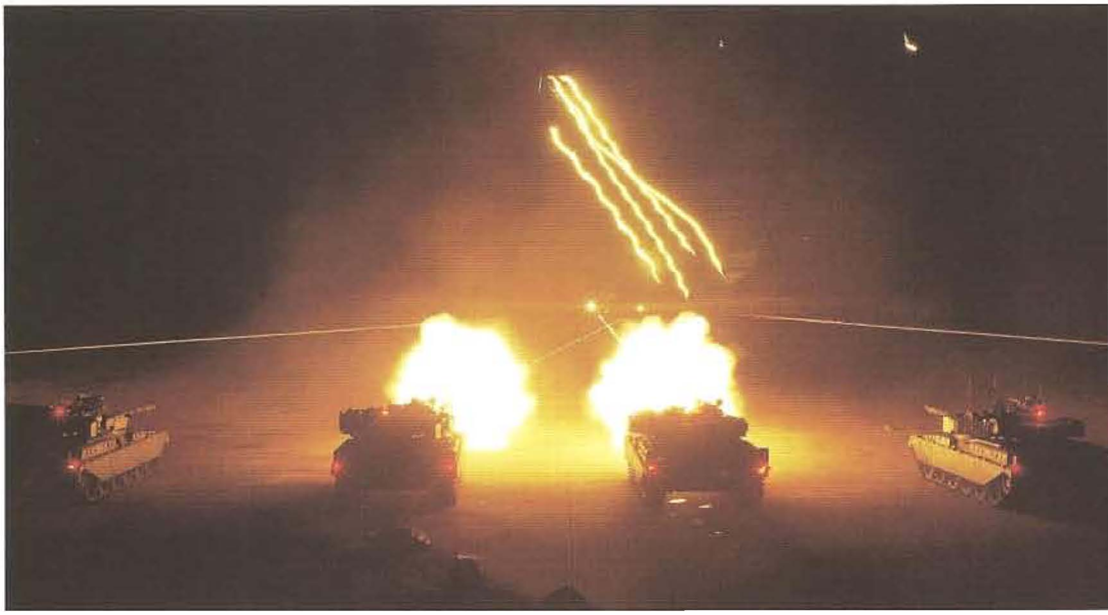
In 1966, the FV4201 Chieftain main battle tank replaced the Cen MBT in the RAC. The Chieftain was the first newly developed British after WWII. The RAC military requirements for a new battle tank were with good firepower and high firing ratio, a modern fire control system, armored protection, and a weight limit of 52 tons. This photo shows transportation of Chieftain Mk.7 MBTs of 4th Armd. Bde., 3rd (UK) Armd using Antar Mk.3A tank transporters in the Einbeck Bowl, near Uslar, Saxonie, during Exercise "Red Claymore 81". (Eckhard Uhde)

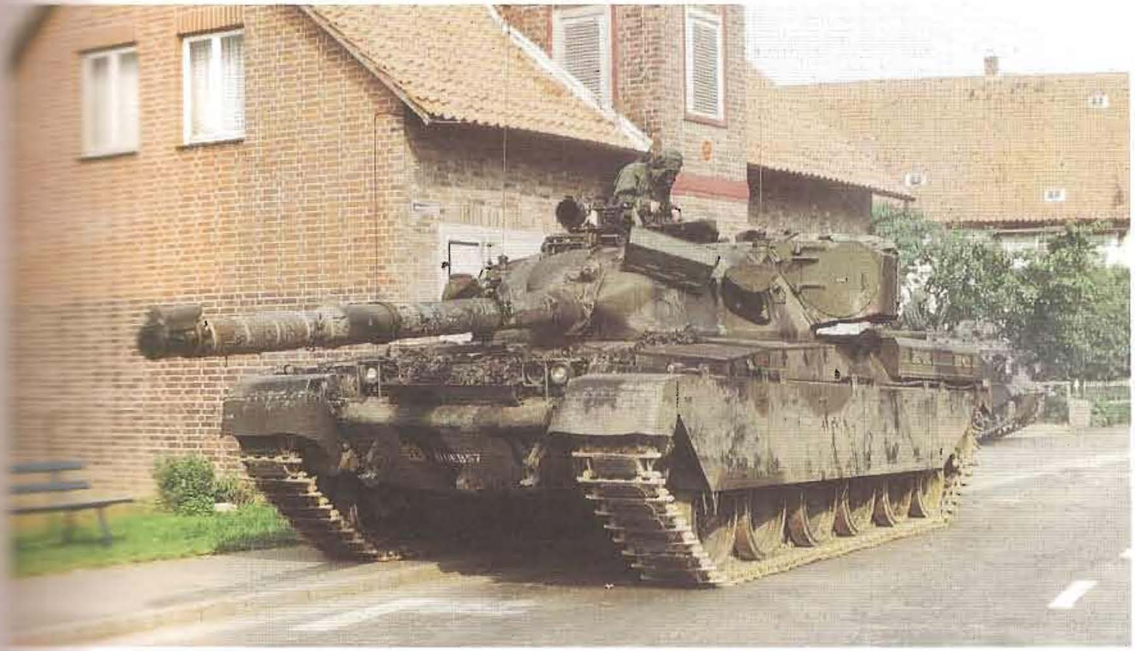


During the Arab-Israeli War of 1967 (Six-Day War), troops lea through experience that heavy armor was an advantage against the Soviet wire-controlled anti-tank missiles. The biggest disadvantage was Chieftain's low speed and poor agility. One main flaw was the unreli 730hp two-stroke Leyland L60 fuel oil engine, which was develo especially for the Chieftain. During Exercise "Red Claymore 81", a Chie Mk.7 takes control of an intersection (B-64) near the German tow Greene a.d. Leine. The tank belongs to the 4th Armd. Bde., 3rd (UK) A Div. (Eckhard Uhde)

Up to the mid-1980s, the Chieftain was the only tank in NATO's fleet with a 120mm main gun. Over the years more than 12 different vers of this tank were built. Most modifications concerned the engine, armor fire control system. Every squadron was equipped with one Chieftain f with a dozer blade. One of the last variants was improved with the Stillbrew add-on armor on the turret front, such as that seen on this Chief

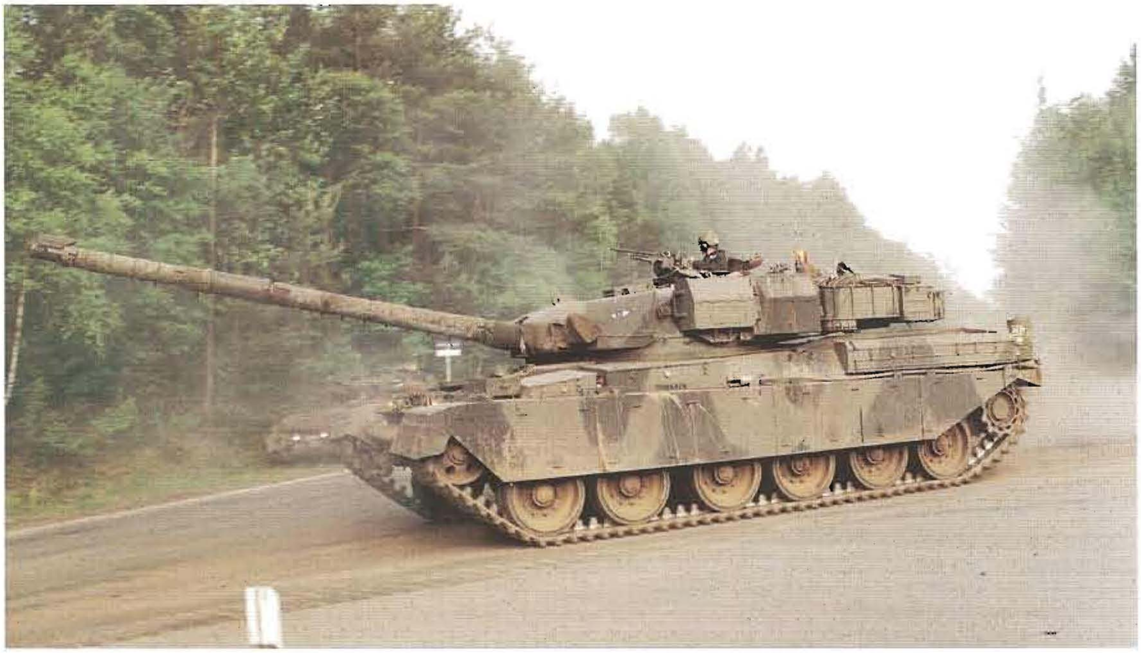
The Chieftain's main gun was the new 120mm L11 gun with two-piece ammunition (the rounds and cartridges are separate parts). The Challenger 1 would be equipped with the same main gun. (Roger Lortie)



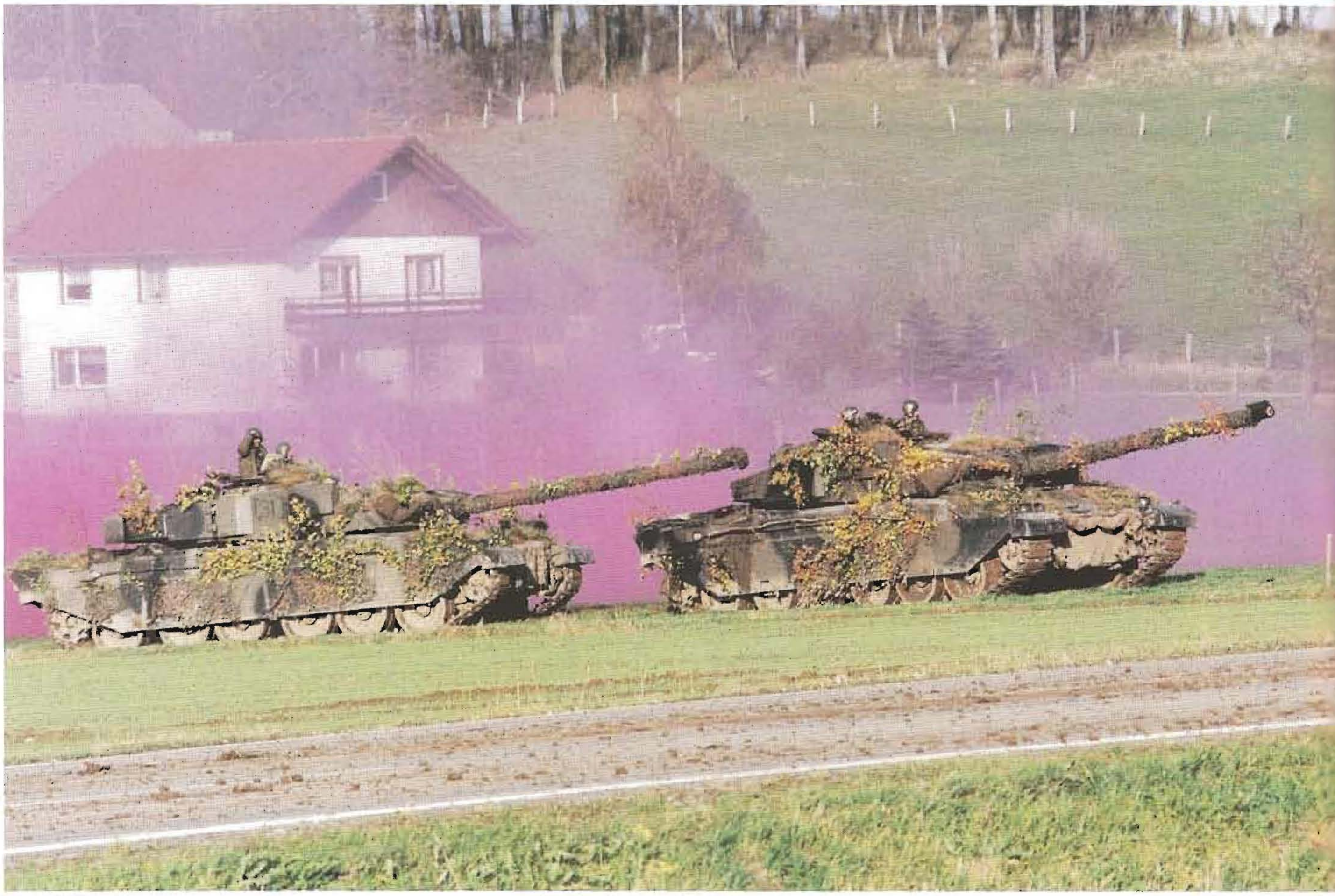


The design of the Chieftain's front armor and the shape of its turret should help to deflect hostile rounds. The large smooth areas on the turret and hull shows only a few bullet holes. Here a Chieftain Mk.3 is seen training for an NBC attack in a town in Lower Saxonie during Exercise "Spearpoint 80". (BFG)

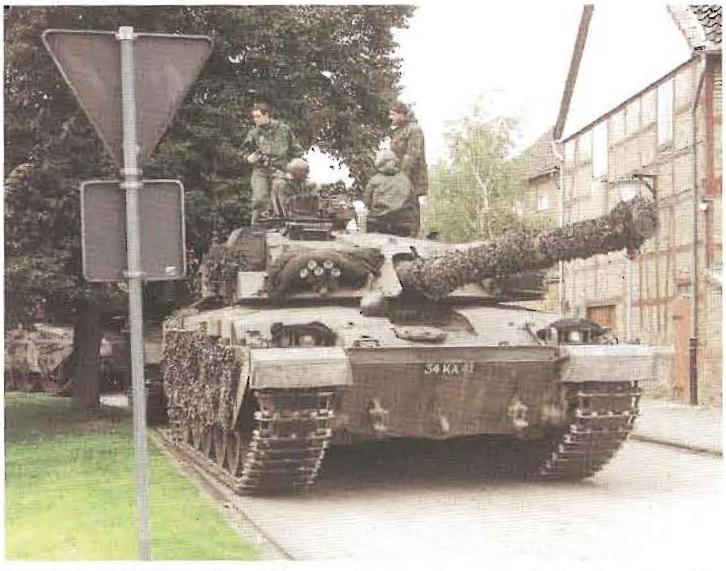
The Chieftain's chassis is very similar to that of its predecessor, the Centurion. The Horstmann chassis, which has six roadwheels and three return rollers, was fitted with removable iron side skirts. Here a Chieftain Mk.15 from 4th RTR ("Chinese Eyes") passes a road crossing near Bispingen during one of the last exercises in the SLA (Soltau-Lüneburg Area). The tank is fitted with the Stillbrew add-on sandwich armor and the thermal observation sight (TOGS) manufactured and developed for the later Challenger by Barr & Stroud. (Walter Böhm).



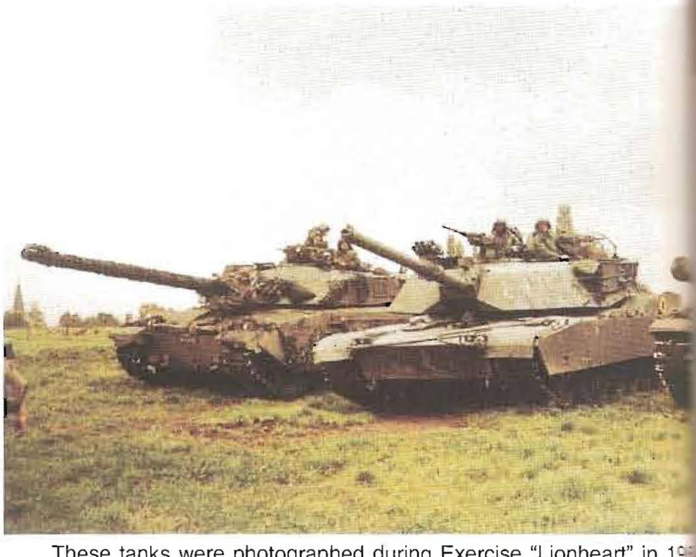
Challenger 1 MBT of BAOR (British Army of the Rhine)



The British Army of the Rhine (BAOR) was under the command of the Northern Army Group (NORTHAG) in Germany. The BAOR had a structu three armored divisions, one infantry division and corps troops. The 1st (UK) Corps was equipped with more than 600 Chieftain and Challenger 1 MBTs more than 3,000 other armored vehicles. The 1st and 4th Armoured Divisions were located and based in the defense line between the cities of Hann (Lower Saxonie) and Kassel (Hessen), not far from the Iron Curtain. The 3rd Armd. Div. was in stand-by mode for the counterattack against the expe Warsaw Pact units. In the event of war, the 2nd (UK) Inf. Div. (based and located in England) would reinforce these troops. In this Cold War scenario East German NVA (as a member of the Warsaw Pact) had the task of attacking the NATO troops in northern Germany and capturing the Nord-Ostsee K (channel between the North Sea and the Baltic Sea). To be prepared, every year in late autumn one of the British divisions held a division-scale FT German territory. One such exercise was Exercise "Eternal Triangle" held in 1986. Here two Challenger 1s from 3rd RTR, 3rd Armd. Div. attacks Da troops near Madfeld-Brilon. (Werner Mörs)

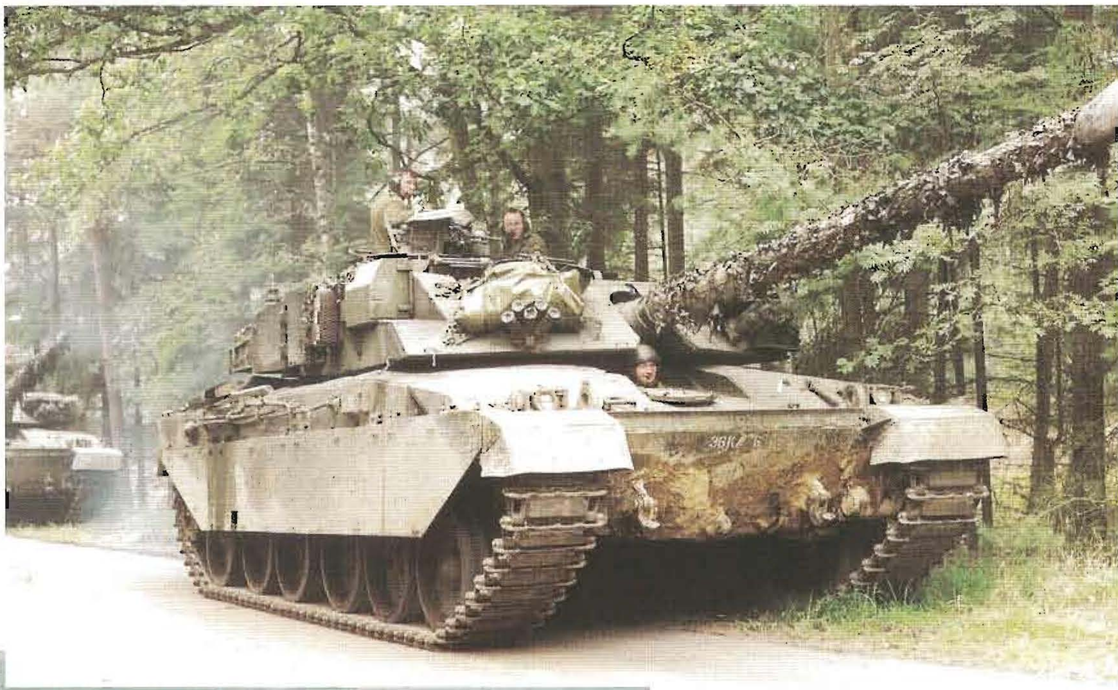


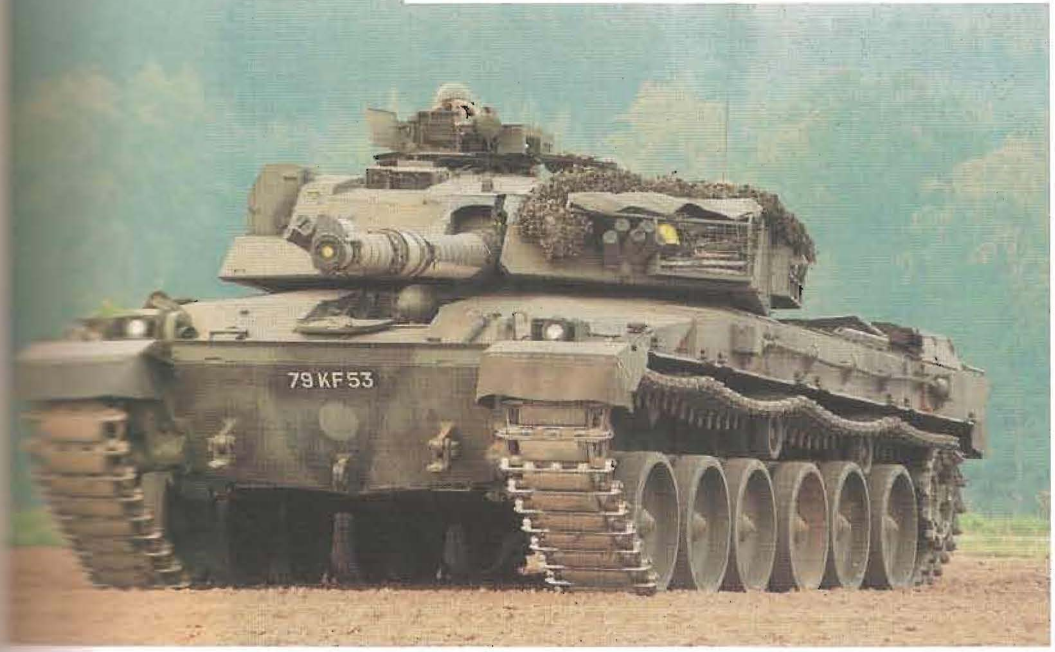
In the RAC, The Royal Hussars Regiment was the first unit equipped in 1983 with the new Challenger 1 MBT. During the "Lionheart" maneuver in September 1984, the Royal Hussars Challenger 1 saw its first action in a major exercise. The first Challengers had no Thermal Image Observation



These tanks were photographed during Exercise "Lionheart" in 19 Shown here are a Challenger 1 Mk.1 of "B" Sqn., Royal Hussars and an from 3-67th Armor from 1st (US) Tiger Brigade, 2nd (US) Armd. Div. Challenger and the American M1 were developed in the same year. Du an Anglo-American information exchange program, the Chobham armo

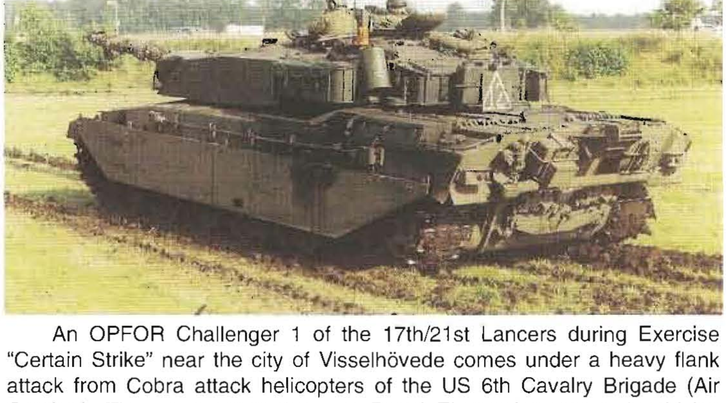
The angular shape of the Challenger is the significant difference from the Chieftain. The Challenger is of welded construction with flat armor plates. The so-called Chobham armor is a laminated armor, a composite of different materials including metal and ceramic material. The exact construction is still secret. Here a Challenger 1 of 17th/21st Lancers is shown during Exercise Reforger 1987 "Certain Strike". (Michael Neumann)





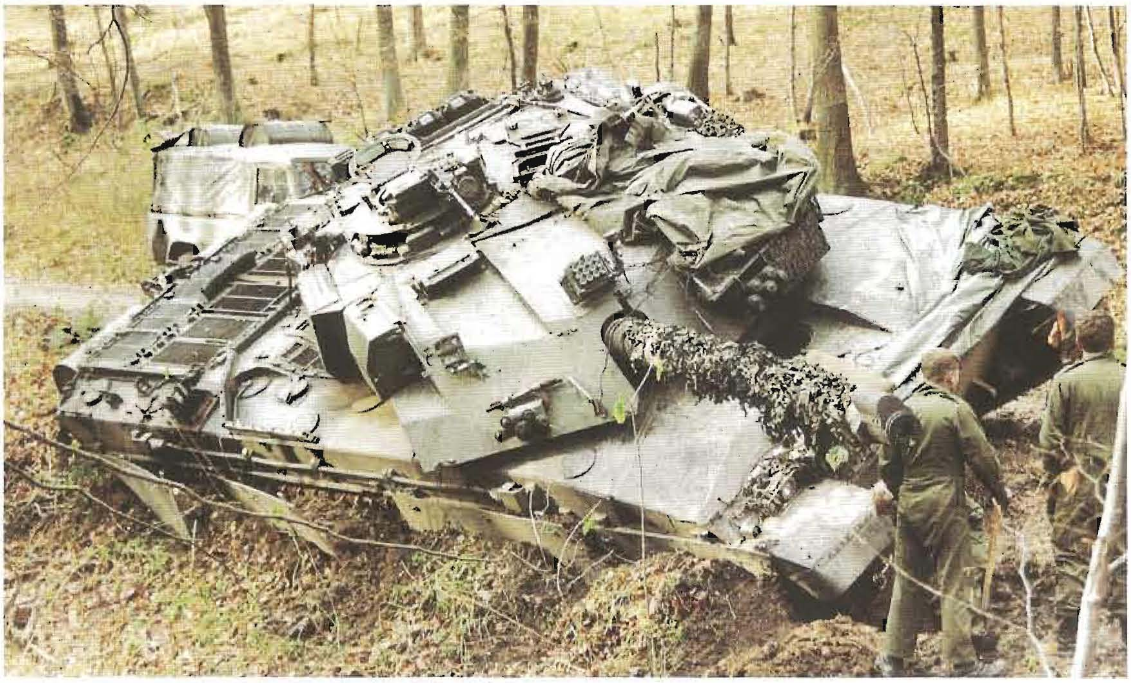
Military Vehicles and Resarch Establishment in England is the leader in developing the new laminated armor for the Challenger 1. The development center is located near the town of Chobham, which is how the new armor got its name. The Horstmann chassis of the Chieftain MBT was replaced by a hydropneumatic suspension on the Challenger 1. As a result, the Challenger's cross-country agility was improved. (Peter Siebert)

Reforger 87 "Certain Strike" was one of the largest NORTHAG corps exercises, with a deployment of 668 MBTs. There were also Challenger 1s of 17th/21st Lancers, 4th Armd. Bde. in the field. Marked with red triangles on the hull and turret, they played the OPFOR role. (Fritz Tegtmeier)



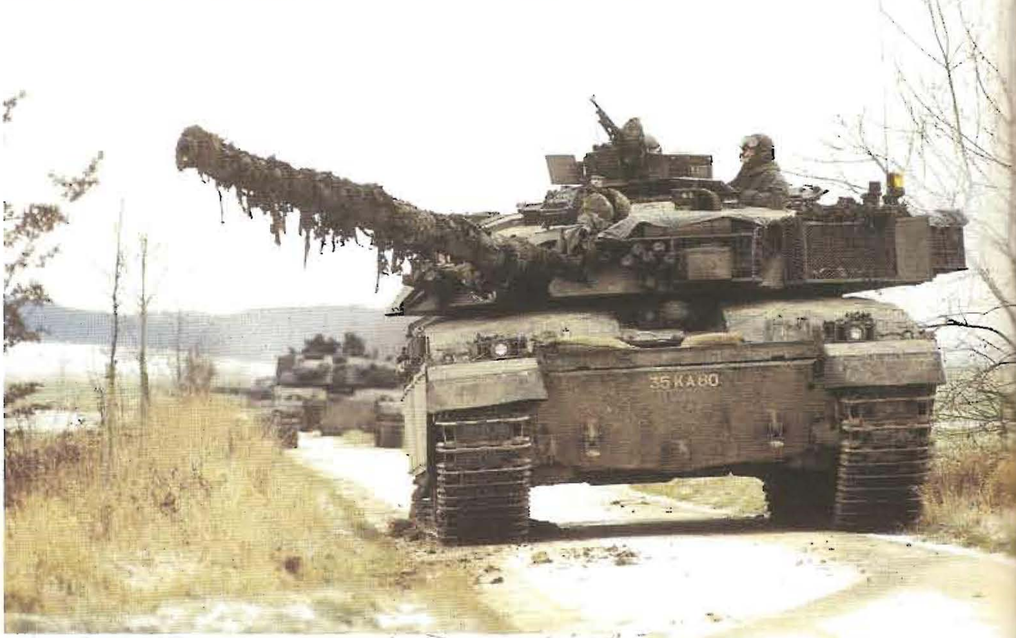
An OPFOR Challenger 1 of the 17th/21st Lancers during Exercise "Certain Strike" near the city of Visselhövede comes under a heavy flank attack from Cobra attack helicopters of the US 6th Cavalry Brigade (Air Combat). The crew wears the new Racal Electronics armored vehicles crewman‘s helmet, which fits over a seperate headset assembly. These helmets were first delivered to the troops in the mid-1980s. (Fritz Tegtmeier)

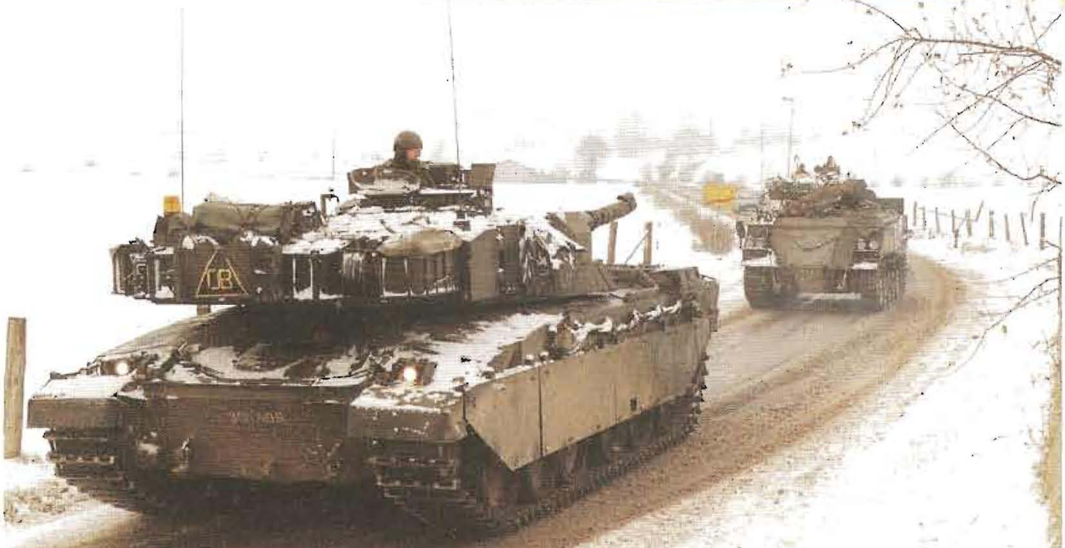
Challenger 1 of 3rd Armd. Div. (Iron Division) at Exercise "Iron Hammer" in 1988



The BAOR's 3rd Armo
Division is nicknamed the "
Division". In 1988 this unit was an
Challenger" division. The 4th, 6th
20th Armoured Brigades make up
division. The Earl of Wellin
established the 3rd Division, and
1815 the "3" fought against Napole
Waterloo. On June 6, 1944, soldie
the "3" were the spearhead during
fighting in Normandy. Here is a
looking down on a Challenger 1 of
3rd Armd. Div. during Exercise "
Hammer 88". Note the No.15 M
commander's cupola with the No
sight and the anti-aircraft machine
(Michael Neumann)

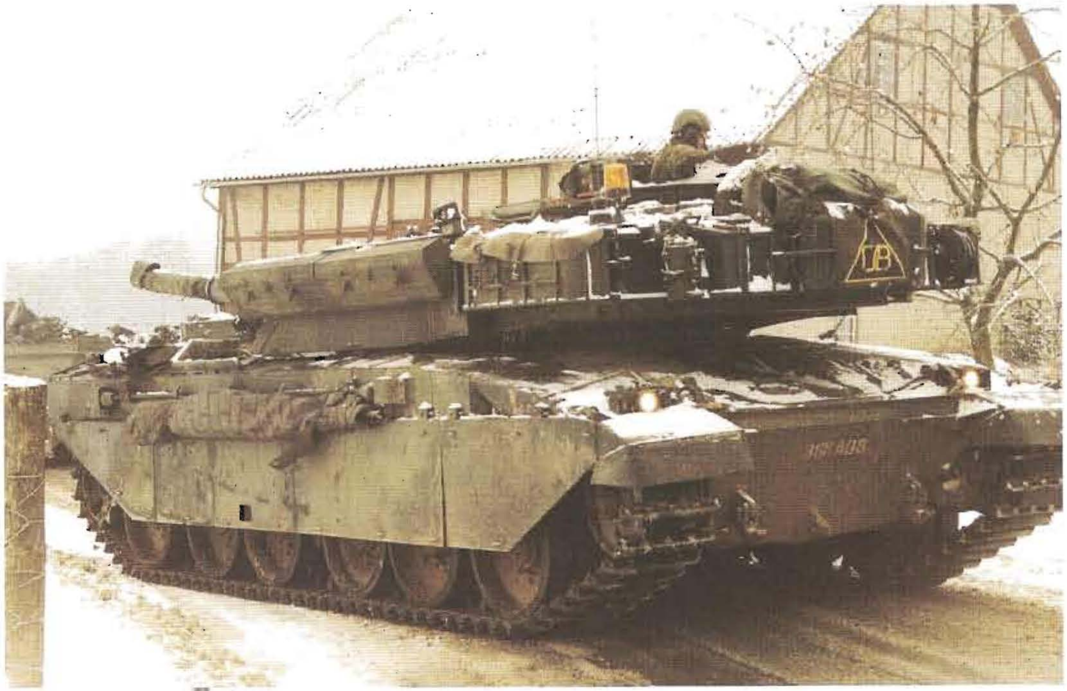
In NATO's structure, the BAOR's 3rd Armd. Div. was given the task of leading the counterattack after a Warsaw Pact offensive. During Exercise "Iron Hammer 88" in November 1988, the British troops trained for this scenario near the "Einbeck Bowl" in Lower Saxonie. Here a Challenger 1 troop, with three tanks, awaits an attack by the Orange Force. In the '80s the BAOR Challenger regiments were organized in the Type 43 classification, with 43 Challenger 1 MBTs in each regiment. A Challenger squadron has four troops, each with three tanks. (Roger Lortie)

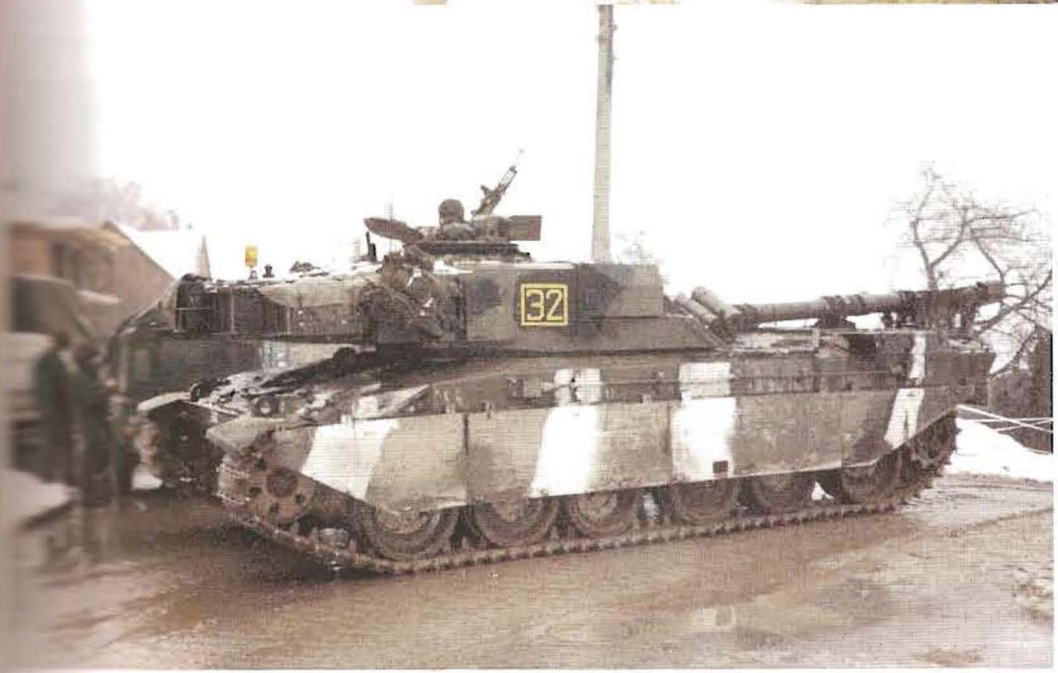




A hostile airmobile battalion
landed in the rear area of 3rd Armd.
Two companies of 1st Que
Lancashire Regiment (QLR) an
squadron of Challenger 1 M
destroyed the enemy in a comb
operation. The photo shows
Challenger 1 call sign "Zero Bravo"

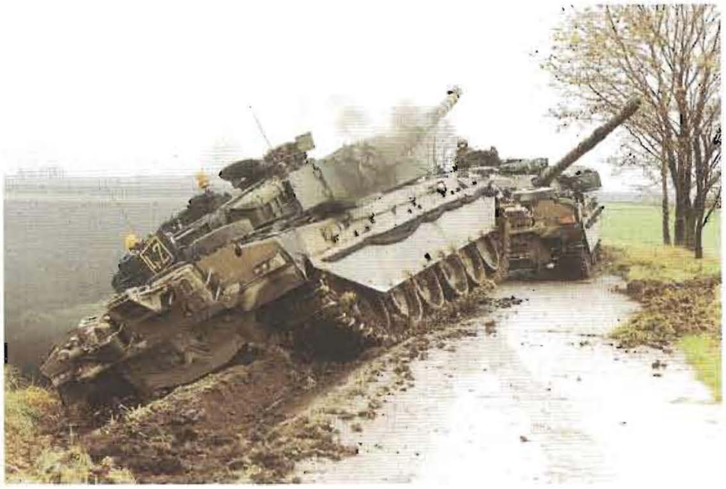
The same Challenger 1, the leader of "A" Sqn. 17th/21st Lancers, is shown in another position. Notice the old Chieftain stowage boxes on the turret and a tarpaulin (on the side skirt) featuring a brick pattern that is used to cover the tank in urban areas. (Michael Neumann)





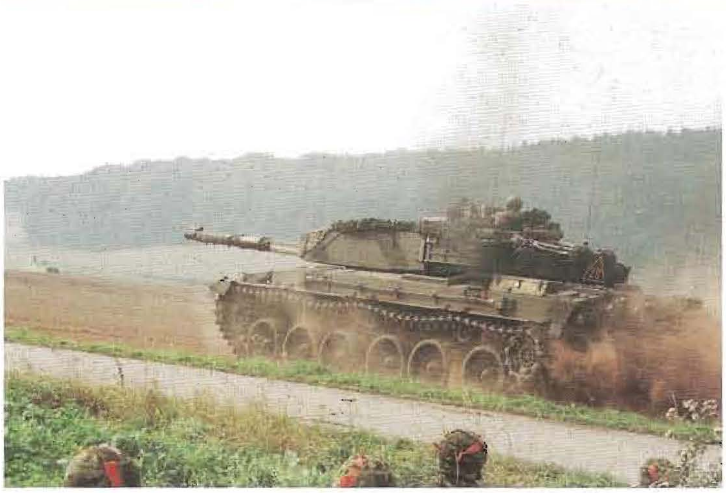
In the course of Exercise "Iron Hammer 88", the weather changed from autumnal dry cold to freezing heavy snow. Soon afterward the German police interrupted all movement of the heavy military vehicles because it became too dangerous for civilian traffic. Being innovative and flexible, the "Iron Division" Challenger crews adapted their tanks to the surroundings, using white chalk paint for temporary snow camouflage. (Andreas Warnecke)

On the final day of the exercise, the 3rd Armd. Div. attacked the Orange Force (German Panzerbrigade 20) with two armored brigades (4th and 33rd Armd. Bde.) from the front and one (6th Armd. Bde.) from the rear. Chinook transport helicopters gave air support, providing materiel to the mechanized infantry and the armored squadrons. (Michael Neumann)

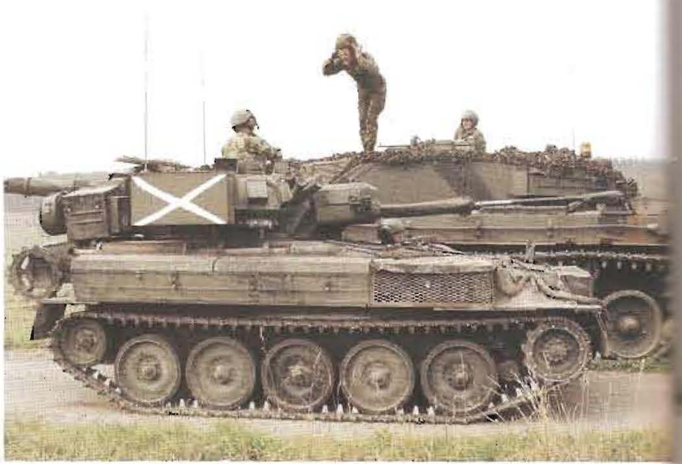


Because of heavy snow, bad weather conditions and massive maneuver damage, the "Iron Hammer" exercise was ended early, on November 25, 1988. This photo shows an unusual recovery operation involving two Challenger 1 MBTs. (Michael Neumann)

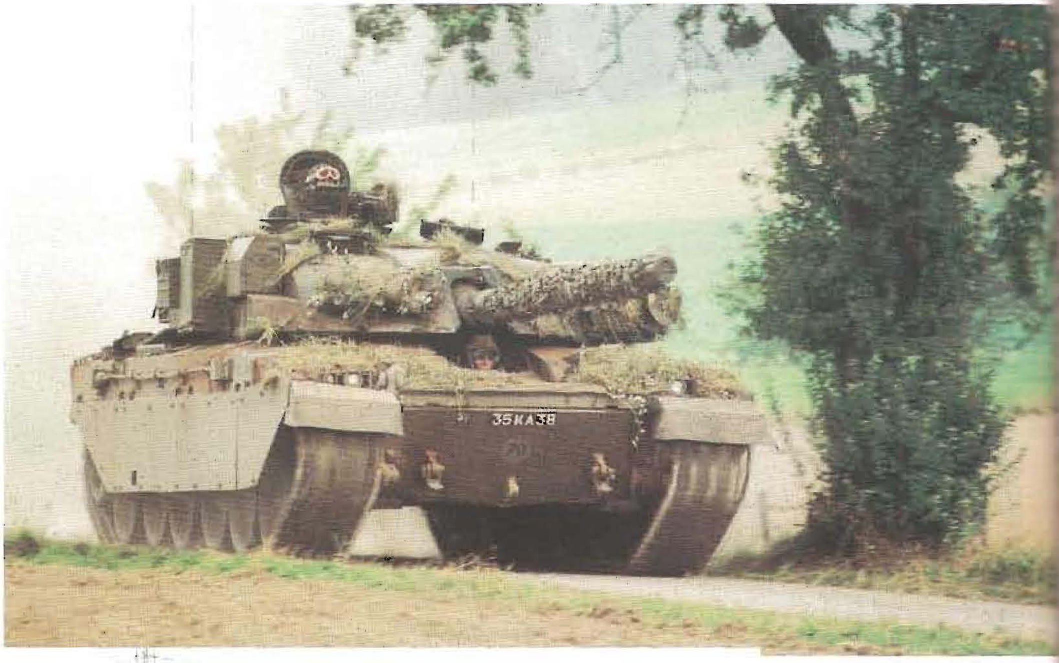
BAOR Challenger 1 in Exercise "White Rhino/Key Flight" 1989



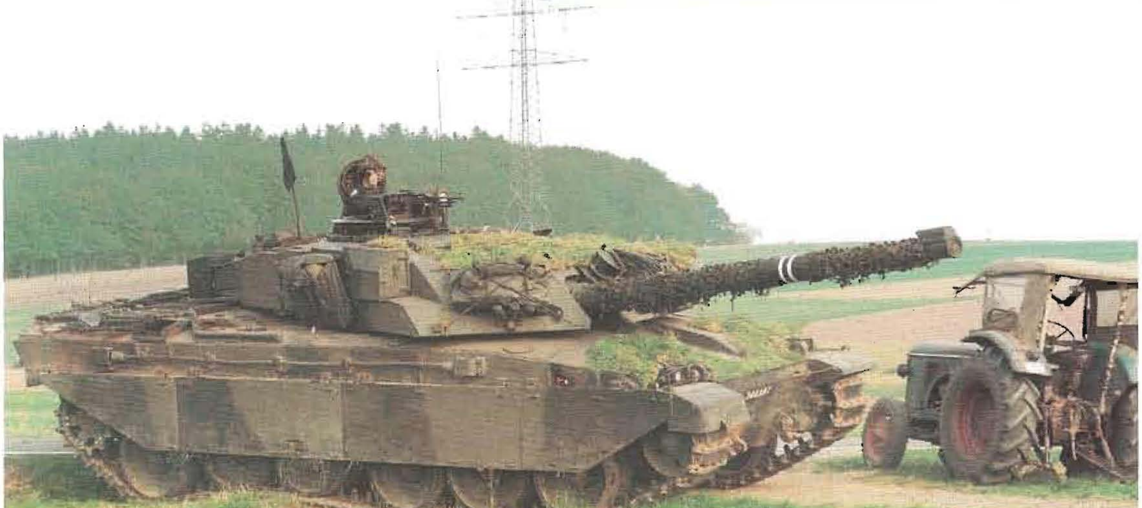
During the 1st (UK) Armd. Div. exercise "White Rhino 89", the Challenger Armoured Regiments fought for the first time against elements of the 24th (UK) Airmobile Brigade in the area of Arolsen. The 24th Airmobile Brigade has an impressive anti-tank capability thanks to their MILAN anti-tank missiles. The brigade is very flexible in deployment with their Puma and Chinook helicopters. Here a Challenger 1 from Scots DG is shown during an advance against dug-in elements of the 24th Airmobile Bde. near the exercise front line near Arolsen. (Peter Siebert)



Light and heavy tanks together. The BAOR Challenger regiments
organized in the Type 43 configuration, which calls for three fi
companies.The reconnaissance troop of a typical Challenger ar
regiment is equipped with eight Scimitar recce tanks. (Peter Siebert)

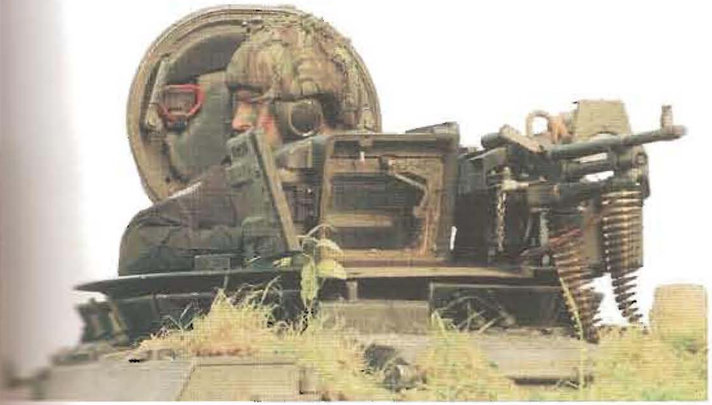


In comparison to the old Chieftain MBT, the Challenger has an advantage of a much stronger engine, a new gearbox, a hydropneumatic suspension, and effective newly developed Chobham armor. Notice the "eye" just visible on the TOGS. (Peter Siebert)

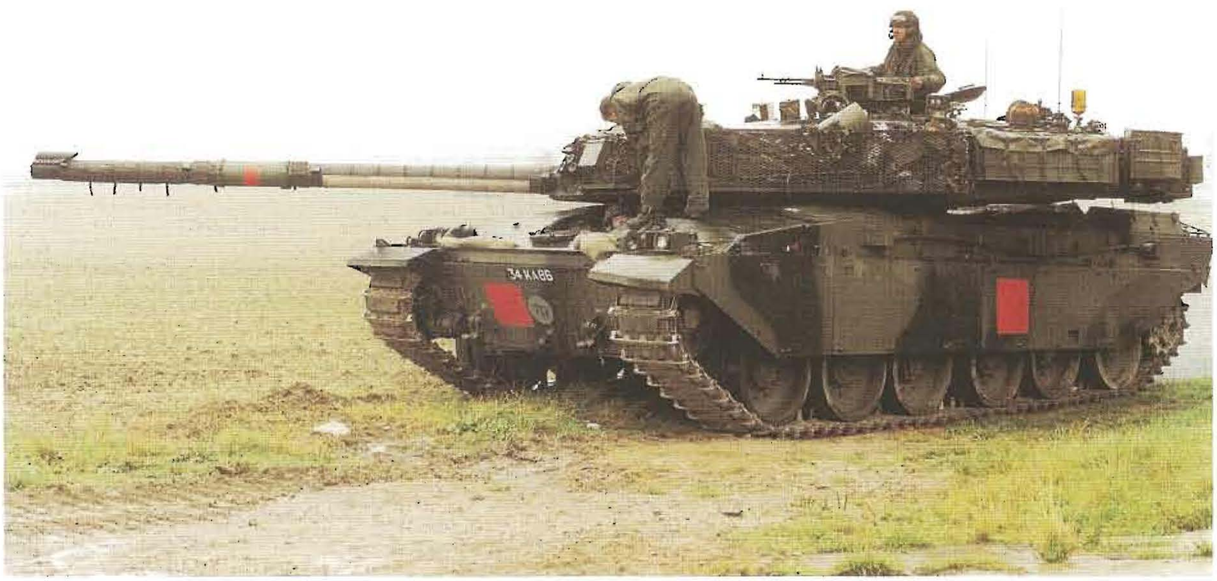


The Chobham sand
armor on the Challeng
provides double prote
against the hollow-head ro
of modern anti-tank miss
compared to conventi
armor plates. This Challeng
of 2nd RTR is taking pa
Exercise "White Rhino 89".
was the last large-scale FT
Germany using Challenge
Notice the small archer pa

The No.32 commander's cupola is a modified No.15 cupola. It is fitted with a No.37 day sight. The day sight can be replaced by an image identification swap sight manufactured by Rank Pullin. To provide an overall view, the commander's cupola has nine periscopes. This commander of a 2nd RTR Challenger 1 wears an Mk.6 infantry helmet cover. (Peter Siebert)

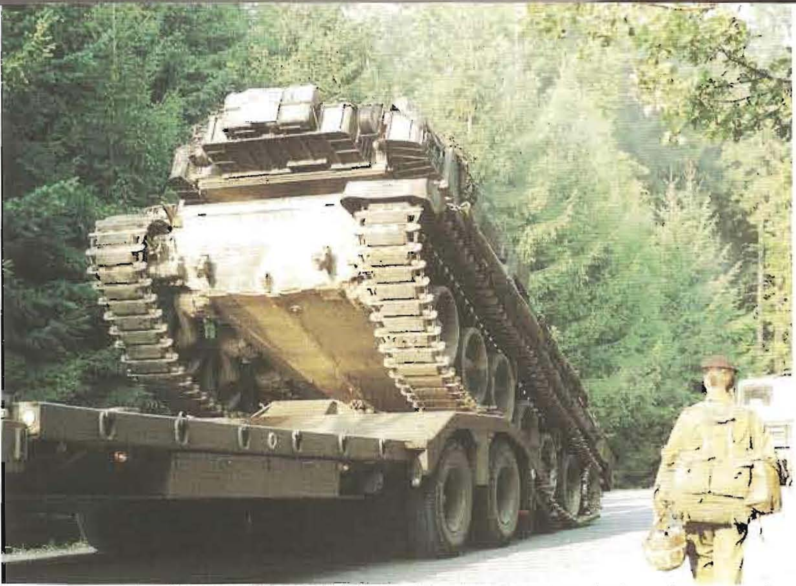


Compared to the German Leopard 1 and the early US M1 (105mm), the Challenger 1, with its weight of 62 tons, is larger and much heavier. Its main gun was no improvement over that of its predecessor, the Chieftain; both have the same 120mm main gun. Only the development of the Challenger 2, with its brand new L30 120mm main gun, was an improvement. Here an [illegible] Challenger 1 from [illegible] Armd. Bde., 2nd (UK) Infantry Division, holds a position in Eldagsen near Hannover. ([illegible] Uhde)

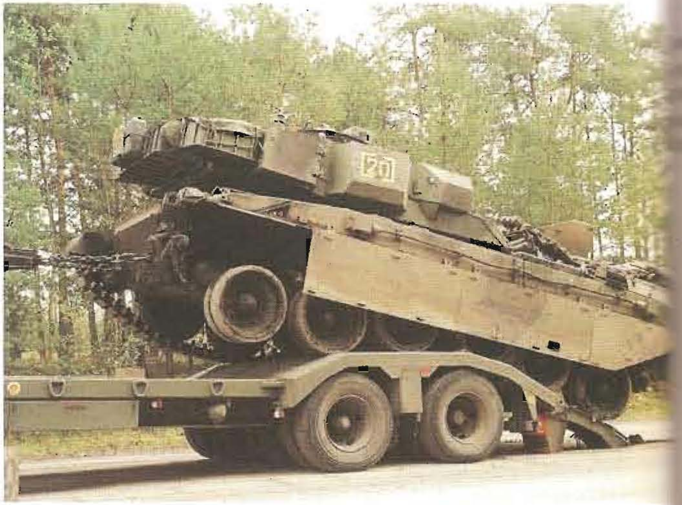


British-American cooperation. After the end of the "White Rhino 89" exercise, the Challenger 1 tanks from the Scots DG are loaded onto American Oshkosh M911/M747 tank transporters near Arolsen-Kohlgrund. The M911 tractor is powered by a 430 hp Detroit-Diesel 2-stroke V8 supercharged engine. The M747 semi-trailer has a capacity of 60 tons. (Werner Mörs)

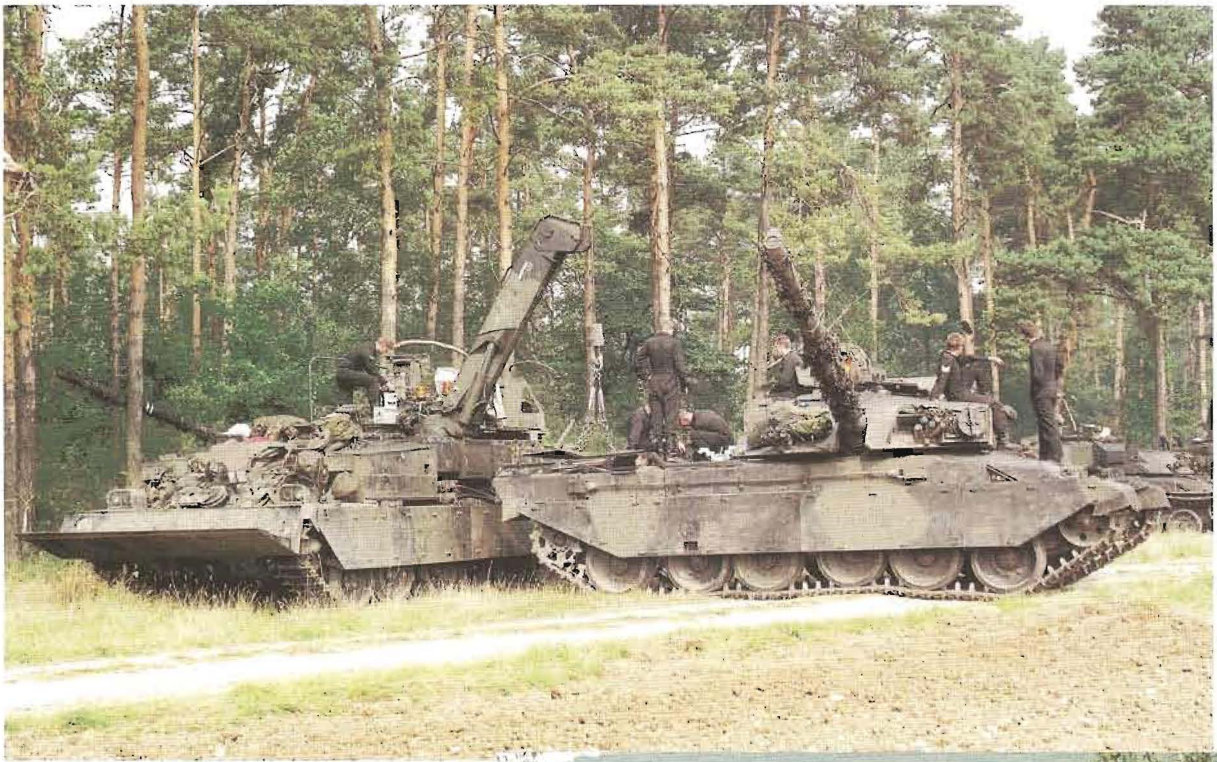
Just as during every annual British FTX before "White Rhino 89", the Challenger 1 MBTs of the 7th Armd. Bde. were transported into the maneuver area by Scammel Commander tank transporters. The Commander tractor (6x4) has a 630 hp Rolls Royce C12 TCE diesel turbocharged engine. The engine is based on major elements of the Challenger 1 engine. (Peter Siebert)



The Scammel Commander tank transporter was designed to carry the Challenger 1 MBT. The trailer has relatively short ramps, which allows the tank to stay nearly vertical during loading and unloading. (Peter Siebert)



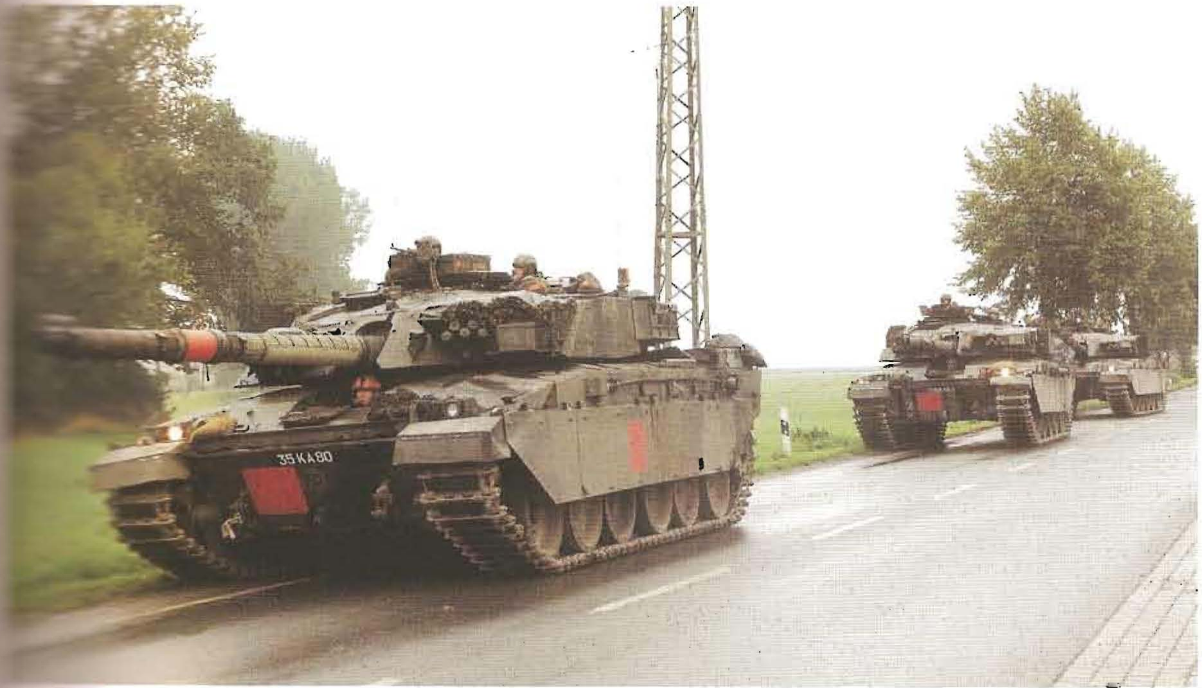
In 1982, the Royal Corps of Transport ordered a total of 125 Sca
Commander (6x4) tractor trucks. With the trailer, the complete train
total length of 19 meters (20 yares) and a width of 3.69 meters (4 y
Damaged tanks are pulled onto the trailer by a winch. (Walter Böhm)



The Chi
Armoured Repai
Recovery Ve
(ARRV) is based o
chassis of the Chie
Mk.5 MBT. The ta
propelled by the 7
Leyland L60 mu
engine. With
hydraulically ope
Atlas crane, the A
can lift a heavy 5
kg (12,078
Challenger powe
But the 62 tons o
Challenger 1 MBT
too heavy for
Chieftain ARRV.
modern and po
Challenger-based
recovery ve
(CRARRV) has bee
service since 1
(Peter Siebert)

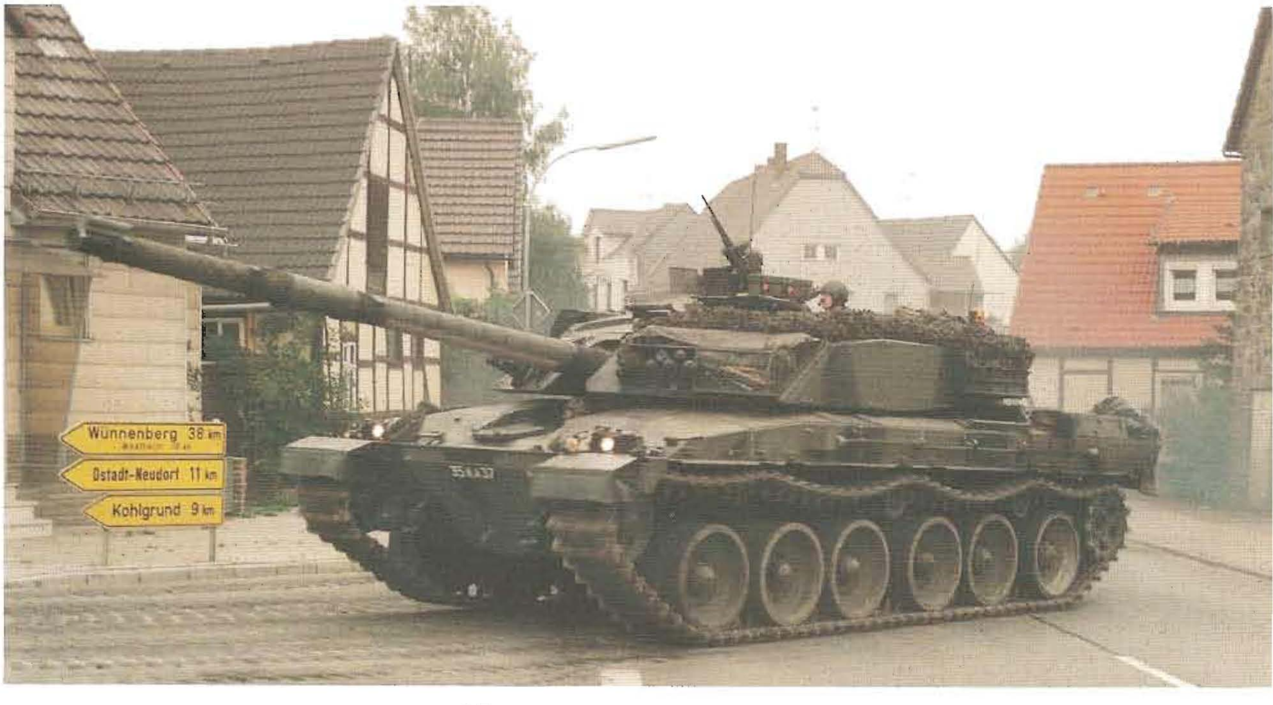
The BAOR fields about seven armored regiments, with a total of more than 380 Challenger 1 MBTs. The RAC in West Germany was formed to fight in the defensive role. The BAOR has no capability for long range advances into hostile territory. Limited counterattacks, like this one over a No.8 tank

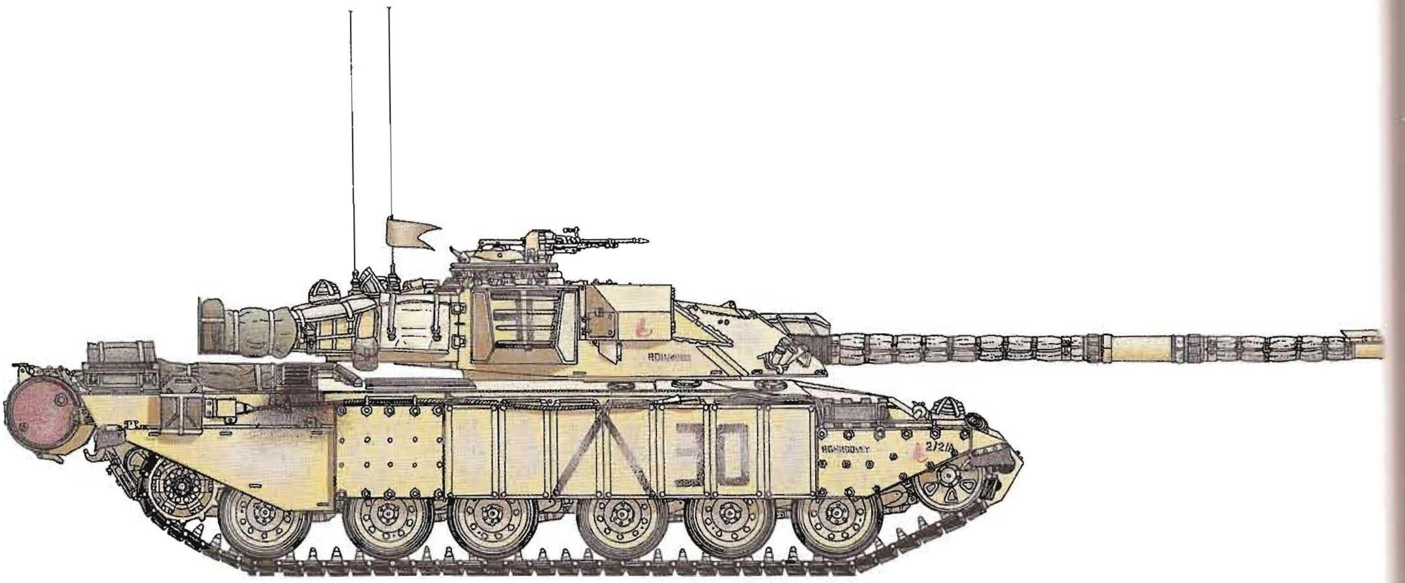
The Challenger 1 Improvement Program (CHIP) covered two key areas: the automotive components and the weapon system. The TN-54 transmission is the direct replacement for the weaker TN-37 transmission. The new transmission provides six forward and two reverse gears, as opposed to the four forward and three reverse gears of the TN-37. (Peter Siebert)



A Challenger 1 troop from 20th Armd. Bde. participates in the FTX "Key Flight/Potent Gauntlet 89" south of Hannover. The red square stickers identify these Challenger 1s as OPFOR vehicles. Exercise "Key Flight 89" was under the control of the 2nd (UK) Infantry Div., based in York, England. Most of the participating troops were deployed directly from their bases in Great Britain to the exercise area between Höxter and Osnabrück in Germany. In case of a war, the 2nd (UK) Inf. Div. would control and secure the rear combat zone. (Eckhard Uhde)

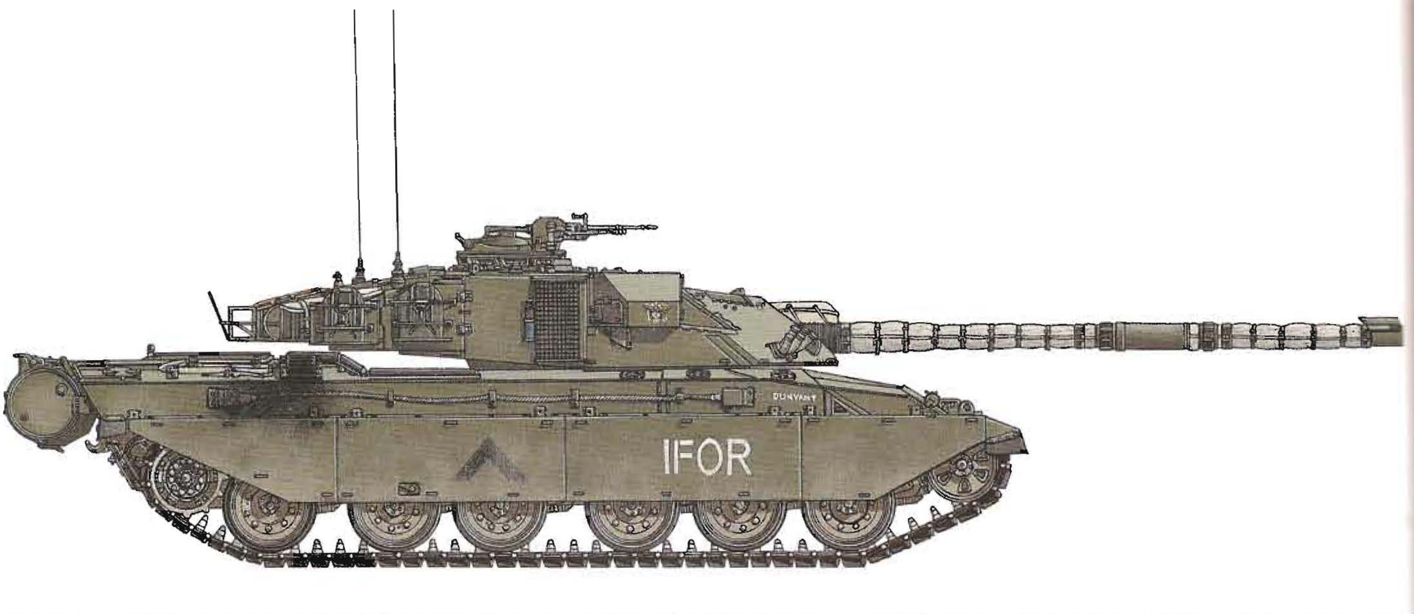
Due to the long barrel of Challenger 1's Royal Ordnance 120mm L11A5 rifled gun, the tank drivers have problems manoeuvring in small German towns and in the woods. The Challenger 2's L30 main gun is shorter and has a longer lifespan. This is a Scots DG Challenger 1 near [illegible] during FTX "White Rhino 89". (Peter Siebert)





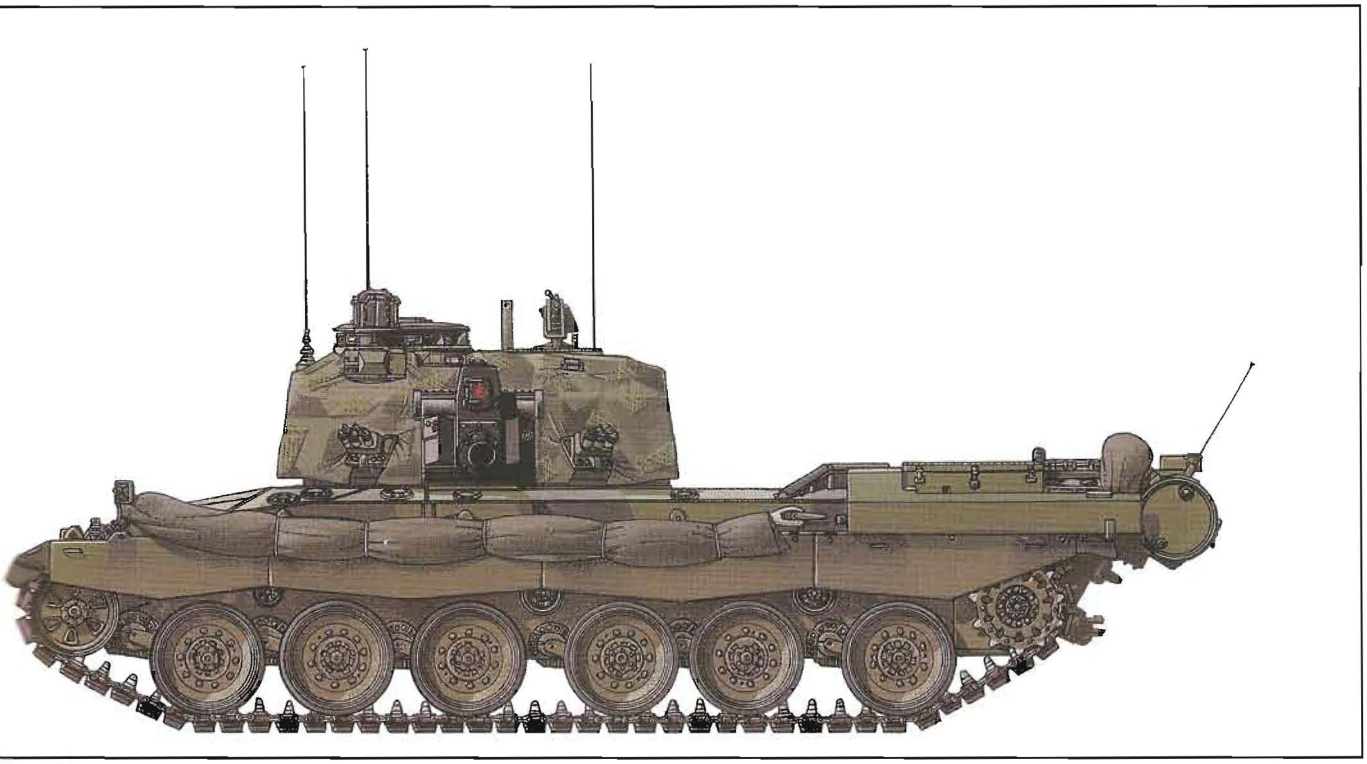
Challenger 1 Mk.3, Queen's Royal Irish Hussars Battle Group, 7th Armoured Brigade, Southern Iraq, February 19

A "Desert War Challenger." Tanks like this vehicle were used by the Queen's Royal Irish Hussars Battle Group during the advance in sou Iraq. This tank (call sign "30") has been upgraded with Chobham armor side and front plates. Notice the black stenciled "30", indicating the sign, and the inverted "V", the symbol of the coalition force, painted on the armor side plates. The alpha-numeric code "2/2/A" on the first skirt near the idler wheel represents the following: The first "2" denotes the 7th (UK) Armd. Bde., the second "2" denotes the battalion (here and the "A" indicates "A" Sqn. of QRIH. Beneath these markings and on the TOGS barbette is the red Jerboa ("Desert Rat"), the traditiona of the 7th Armd. Bde. ("Desert Rats"). The word "AGHROOVEY" is the name of an Irish town that begins with the squadron letter. To increase vehicle's range, the tank is equipped with external fuel barrels on the rear of the tank. Before battle, the empty barrels were removed to re the risk of fire.



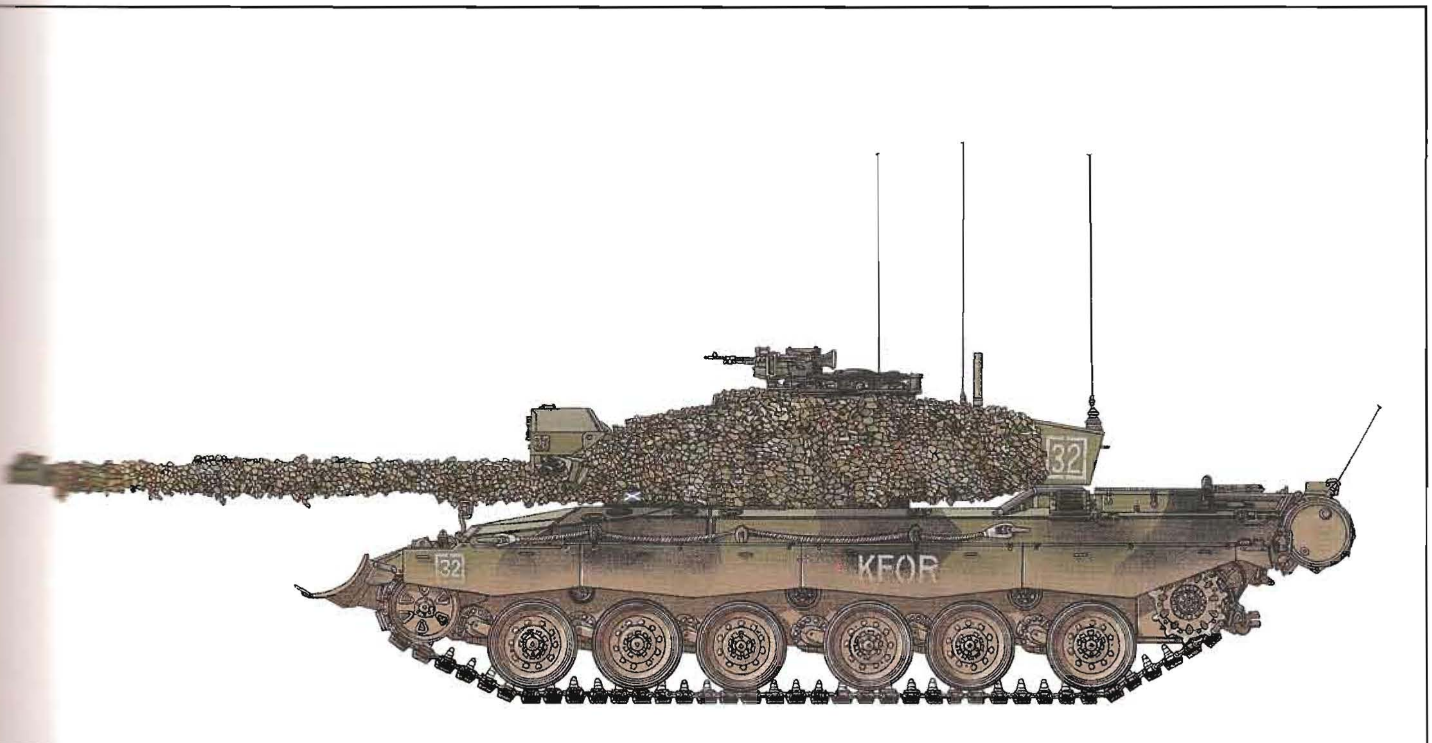
Challenger 1 Mk.3 of "D" Sqn., The Queen's Dragoon Guards, Operation "Resolute", western Bosnia, 1st (Mechanized Brigade, September 1996

Challenger 1 Mk.3 used by the QDG during Operation "Resolute" in 1996 in western Bosnia. Note the unusual one-tone bronze-green ove camouflage scheme and the missing call sign, squadron and troop markings. This tank is fitted with additional external fuel drums at the rea the hull. The Hapsburger – the double-headed eagle – is painted on the TOGS barbette. Painted in large white letters on the second side sk



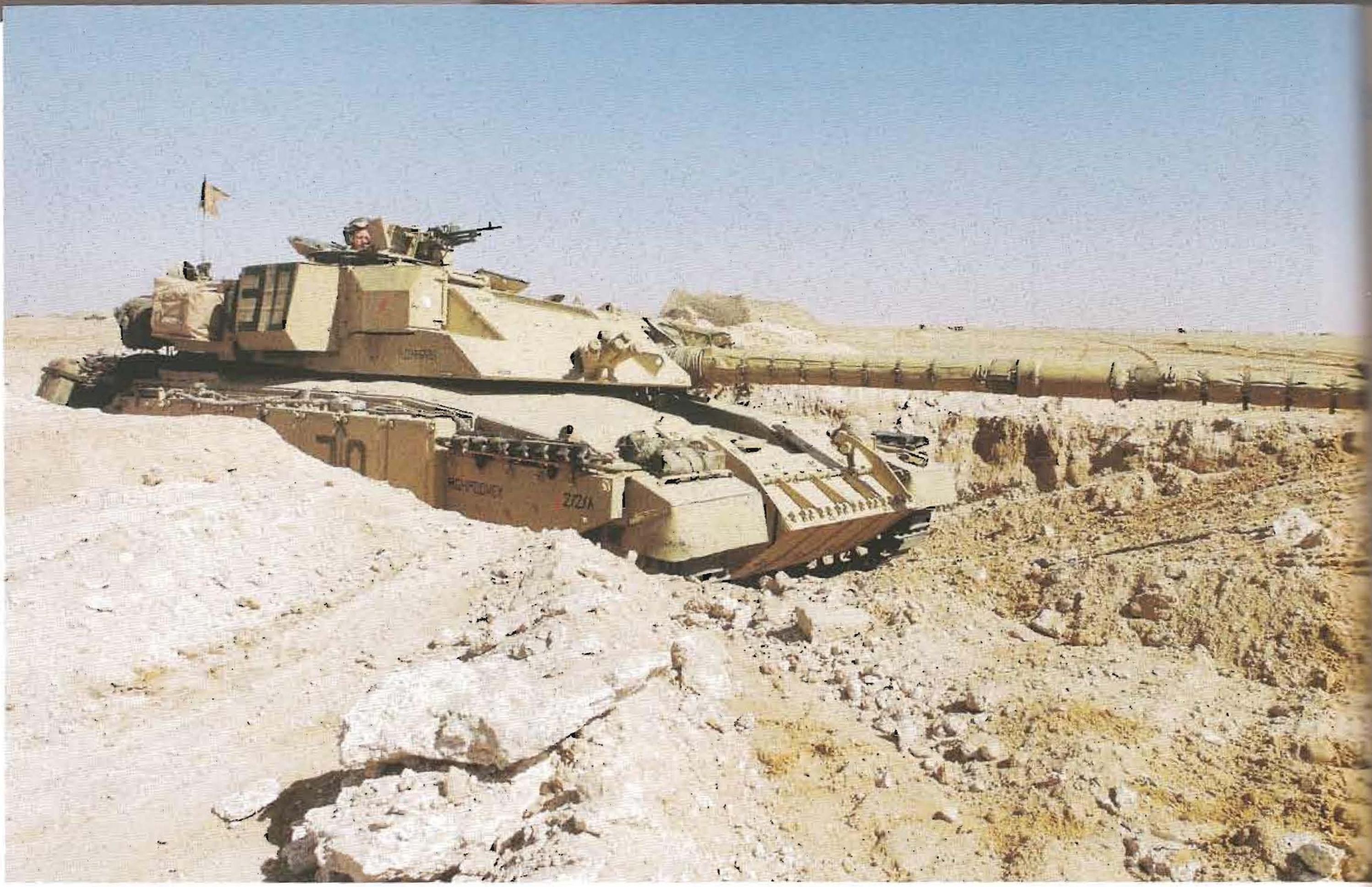
Challenger 2 with TECs during "Introduction into Service", Royal Scots Dragoon Guards, Bergen-Hohne Training Area, northern Germany, June 1998

During the official handover ceremonies of the first Challenger 2 MBT from Vickers Defence to the British Army on June 30, 1998, a Challenger 2 with a special camouflage system was shown. The main part of this camouflage system is the Thermal Exhaust Cowls (TEC) system. TEC, which is mounted at times of crisis or war, is designed to reduce the tank's thermal signature. To this end the tank's exhaust system is better insulated and the turret and hull are covered with specially prepared camouflage tarpaulins. Note the red Jerboa, the symbol representing the 7th (UK) Armd. Bde., on the commander's panoramic daytime sight.



KFOR Challenger 2, "B" Sqn., Scots Dragoon Guards, 7th (UK) Armd. Bde., Fallingbostel, northern Germany, January 2000

The Challenger 2 of "B" Sqn., Scots Dragoon Guards, which is painted in the usual standard British Army colors of green and black, was loaded onto a flatbed wagon in January 2000 for transportation from Fallingbostel, Germany to Kosovo. The 120mm main gun and the whole turret was covered with camouflage nets. Only the turret rear was left uncovered to show the call sign "32". Visible on the bottom of the turret rear plate is the St. Andrew's cross, the symbol of the SDG, painted in white. Fitted on the tank pictured here, "Bravo Three Two" from "B" Sqn., SDG, was the front-mounted Combat Dozer Blade. The light gray square frame painted on the rear of the turret and on the first side skirt near the idler wheel is the tactical sign of "B" Sqn. Inside the frame is the call sign "32". Notice the small red Jerboa ("Desert Rat") in front of the large gray "KFOR" stencil painted on the side skirt.



Challenger 1 Mk.3, call sign "Three Zero", "A" Squadron, Queen's Royal Irish Hussars, 7th Armd. Bde., 1st (UK) Armd. Div. in southern Iraq, Fe 1991. Together with the 1st (US) Infantry Div., the Challenger 1 Mk.3s from QRIH crossed phase line New Jersey on February 25, 1991 and advanc southern Iraq. The red Jerboa of the "Desert Rats" is painted on the TOGS, on each forward Chobham armor side plate and on the front plate. The un "2/2/A" appears on the front Chobham armor. The first "2" represents the 7th Armd. Bde., the second "2" stands for the QRIH, and the "A" indicates "A "AGHROOVEY" is the name of a town in Ireland that begins with the squadron letter ("A"). The call sign (c/s) "30" is painted in black on the side ski near the commander's stowage box. The pennant is painted in the regimental colors. (BFG)

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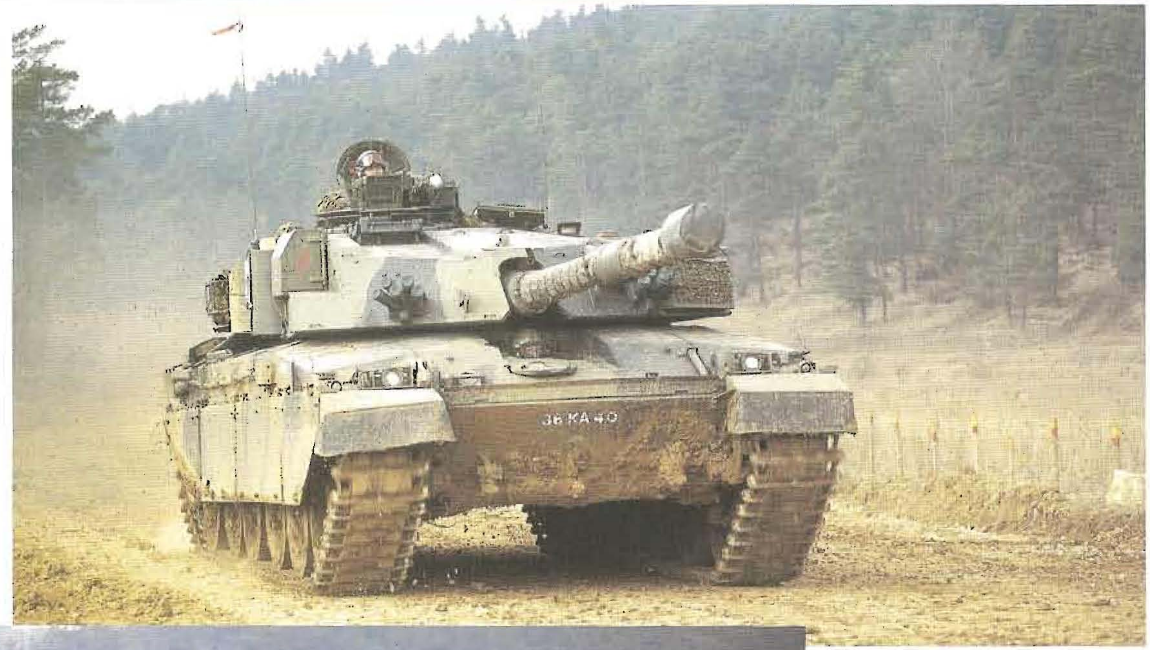
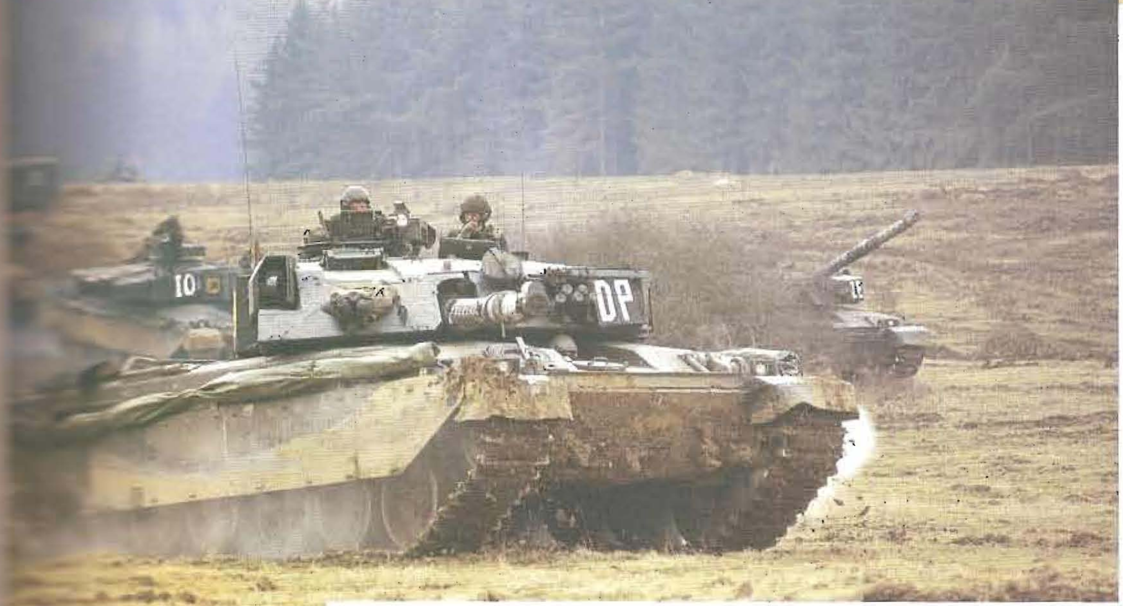
34KA7

After the end of the Cold War and Gulf War, the British Army underwent an intensive reorganization. The BAOR was dissolved, and of the three fo

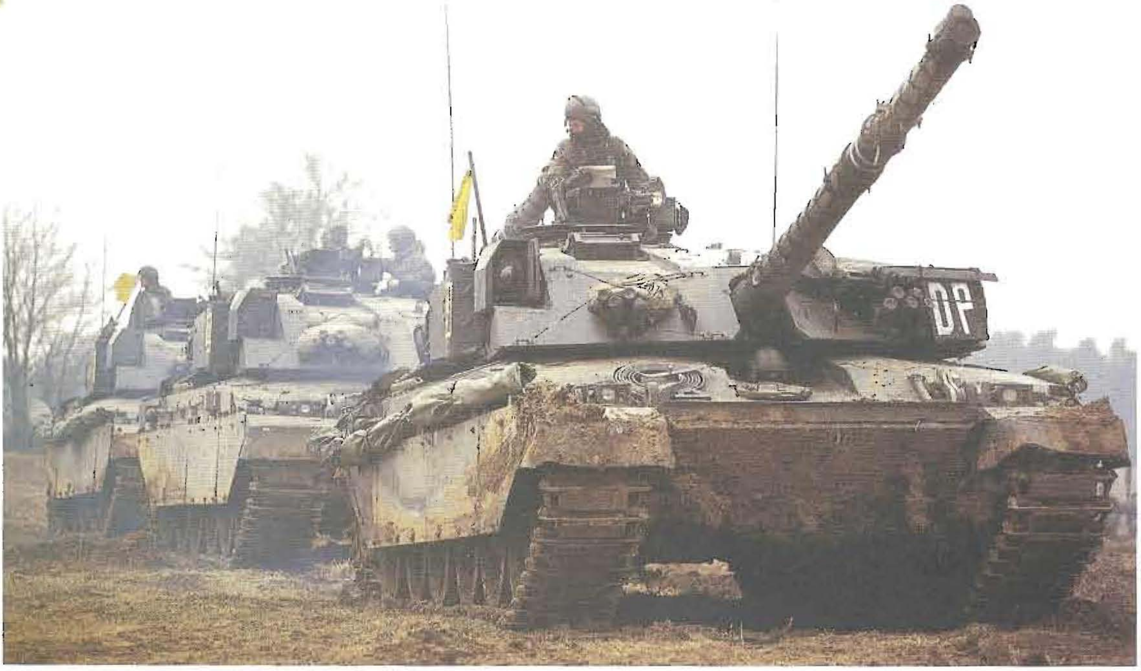
Challenger 1 of 2nd RTR, Exercise "Prairie Progress 96" at 7th (US) Army CMTC, Germany



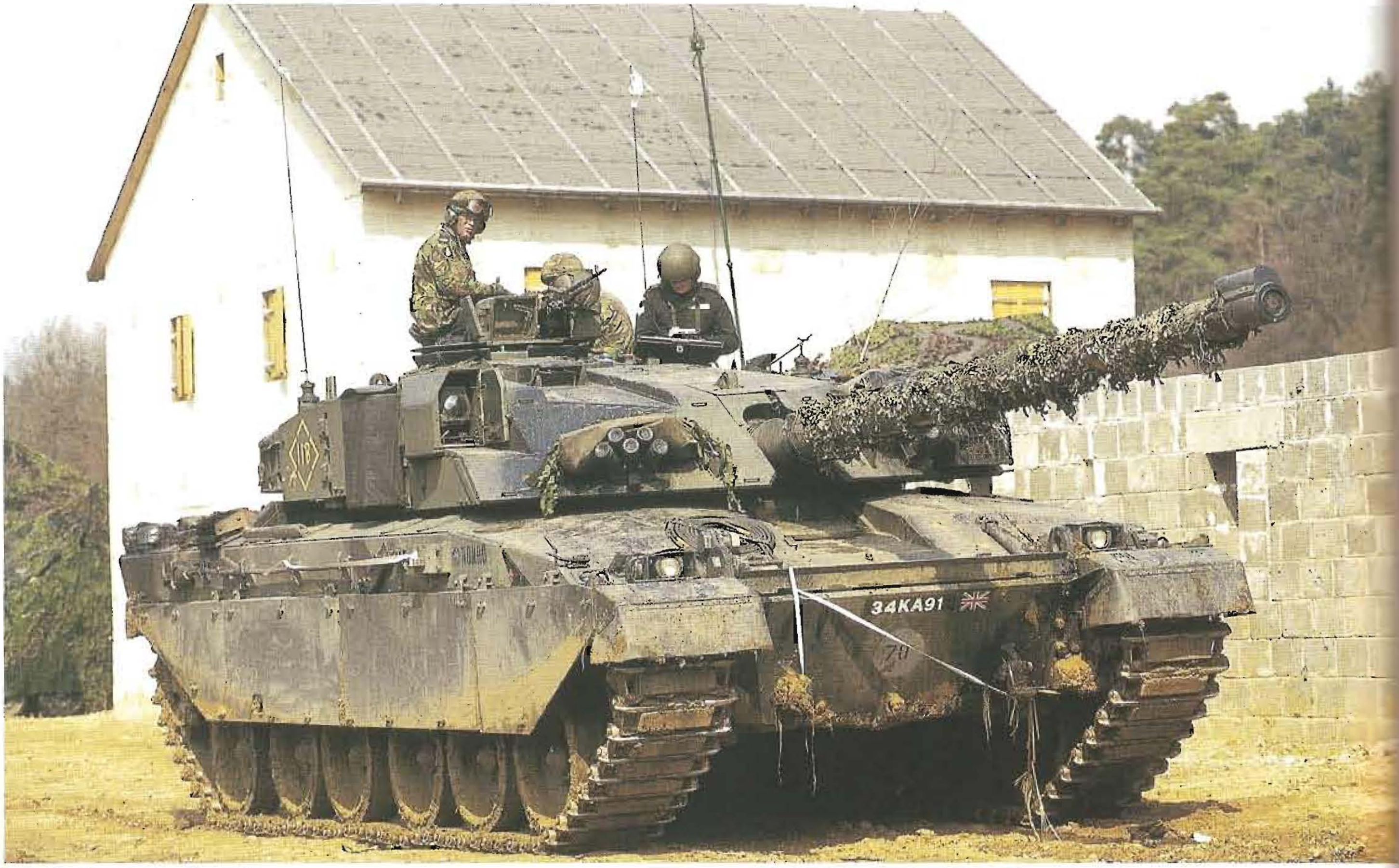
In March 1996, the 2nd RTR Battle Group, 7th Armd. Bde., 1st (UK) Armd. Div., held Exercise "Prairie Progress" at the 7th (US) Army training center at Grafenwöhr and Hohenfels. The terrain in this area was very similar to the mission operation areas of the 1st (UK) Armd. Div. in Bosnia and, later on, in Kosovo. Notice the red Jerboa on the TOGS of this Challenger 1. (Walter Böhm)



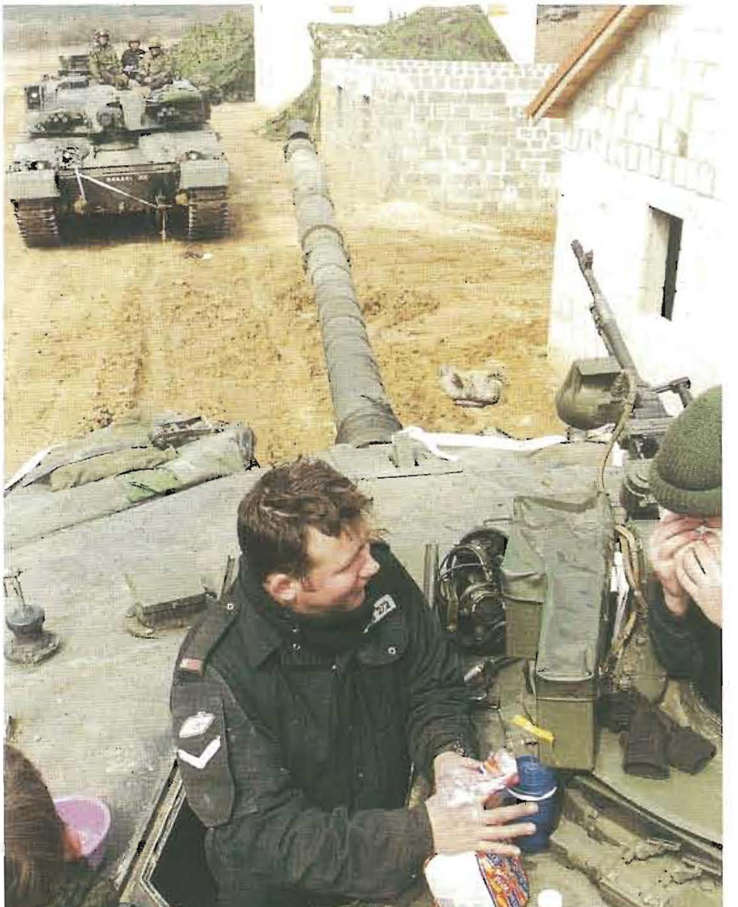
During the tactical part of Exercise "Prairie Progress" at CMTC Hohenfels, all tactical vehicles received individual temporary lettering. This exercise helped the 2nd RTR prepare for training at BATUS (British Army Training Unit Suffield) in Canada. (Walter Böhm)

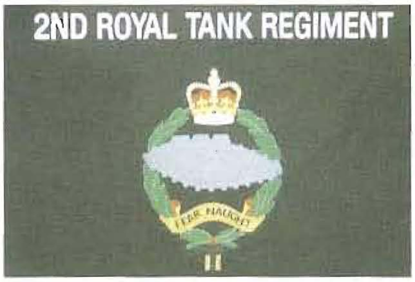


The present-day Royal Tank Regiment (RTR) is descended from the heavy Branch Machine Gun Corps that was formed in 1916 to crew the world's first tanks. Today there are just two regiments remaining from the 66 units officially established during the world wars. In 1992, 2nd and 3rd RTR merged to form the present 2nd RTR. (Walter Böhm)



"NOMAD", the 2nd RTR's regimental headquarter's tank. The Challenger 1 with the c/s "One One Bravo" was used during " Prairie Progress 96" as umpire's vehicle. Above the front side skirt you can see the lettering " NOMAD" beneath the 2nd RTR's insignia. Traditionally, the 2nd RTR commande tank was called "NOMAD" and the 3rd RTR commander's tank was named "CAMBRAI". After the merger of both regiments, the second tank in regime headquarters is now called "NOMAD". The commander's tank carries the name "CAMBRAI", so the history of both units lives on. (Walter Böhm)





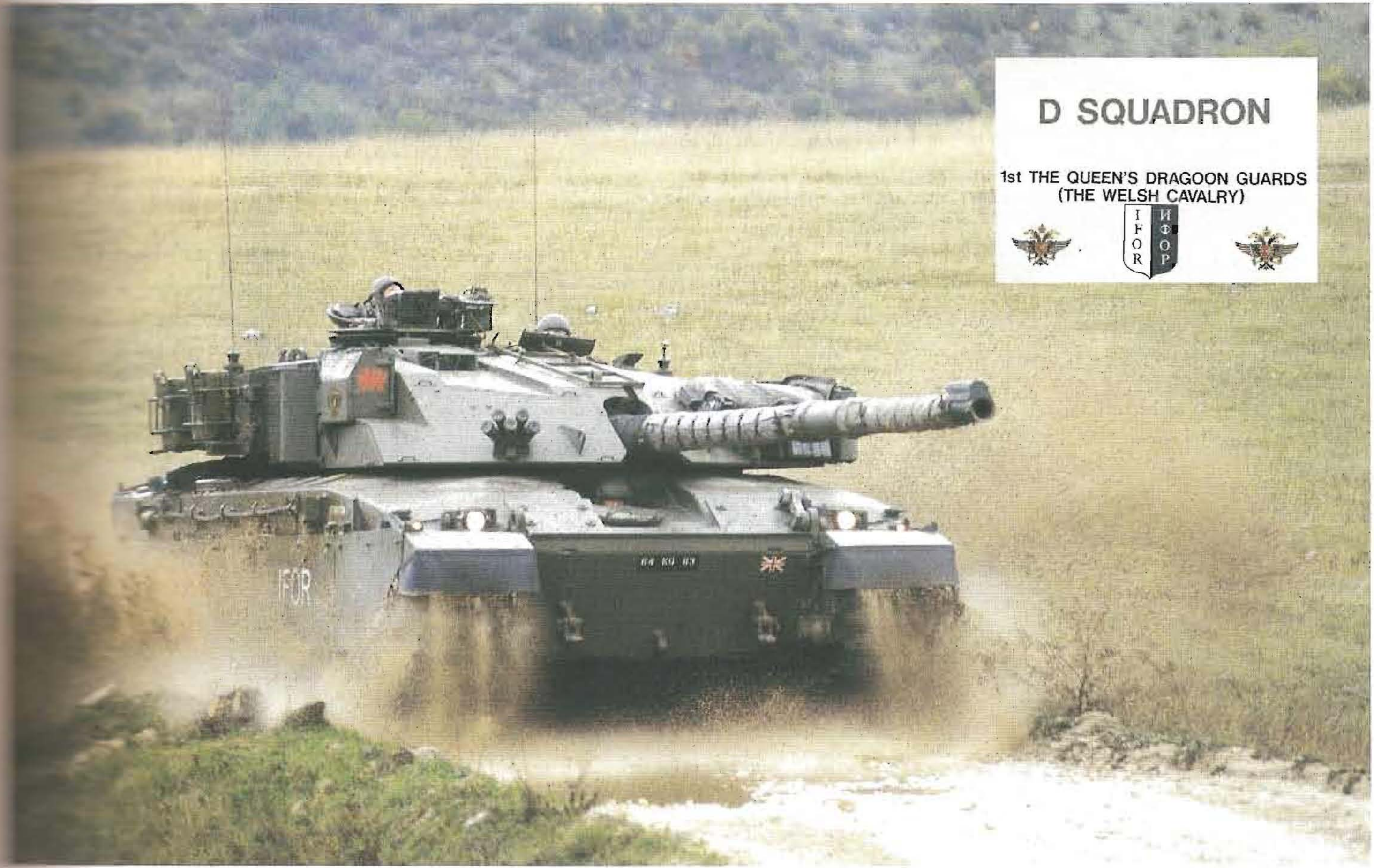
Seen here is the regimental badge of the 2nd RTR, which features the slogan "Fear Naught". With green on the top, the colors were awarded their first honors at the battle of Cambrai on November 20, 1917 in World War One. The three different colors represent the 2nd RTR's roots in the Flanders theatres: "From the mud (brown), through blood (red), to the green fields beyond (green)". (Walter Böhm)

2nd. ROYAL TANK REGIME
FEAR NAUGHT

Close-up of 2nd RTR insignia on Challenger "NOMAD". (Walter Böhm)

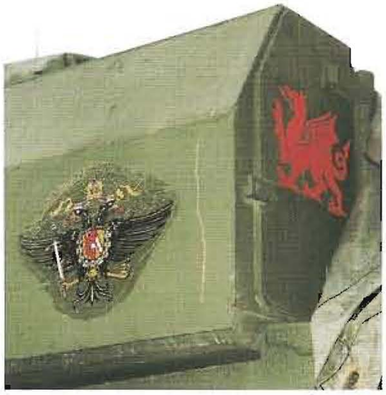
The Royal Tank Regiment was the first unit in the British Army to wea berets, a practice that was later adopted by the rest of the army. The troo of the RTR wear black berets and black overalls (used duri maintainance). When on parade, the officers wear black shoes, gloves a a black Sam Browne belt. They also can carry an ash walking stick,

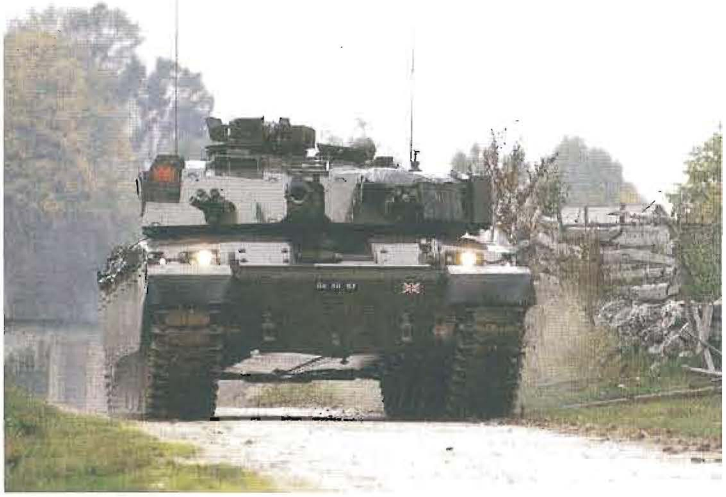
Challenger 1 of 1st The Queen's Dragoon Guards during Operation 'Resolute 2A' in Bosnia, 1996



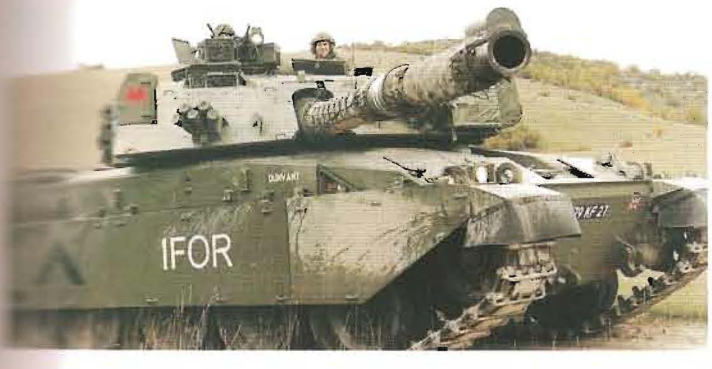
Challenger 1 Mk.3 of QDG near Baraci, Bosnia. The 1st Queen's Dragoon Guards (QDG) was formed in 1959 from the King's Dragoon Guards and Queen's Bays, which were both raised in 1685 to quell the Monmouth rebellion. The soldiers are recruited from Wales and the border countries, earning the regiment its first nickname "The Welsh Cavalry". Note the regimental insignia, the red dragon of Wales, placed on the TOGS door. (Walter Böhm)

Close-up of the regimental badge of the QDG. The Welsh red dragon, the national symbol of Wales, is seen here along with the Hapsburg eagle painted on the TOGS barbette. (Walter Böhm)

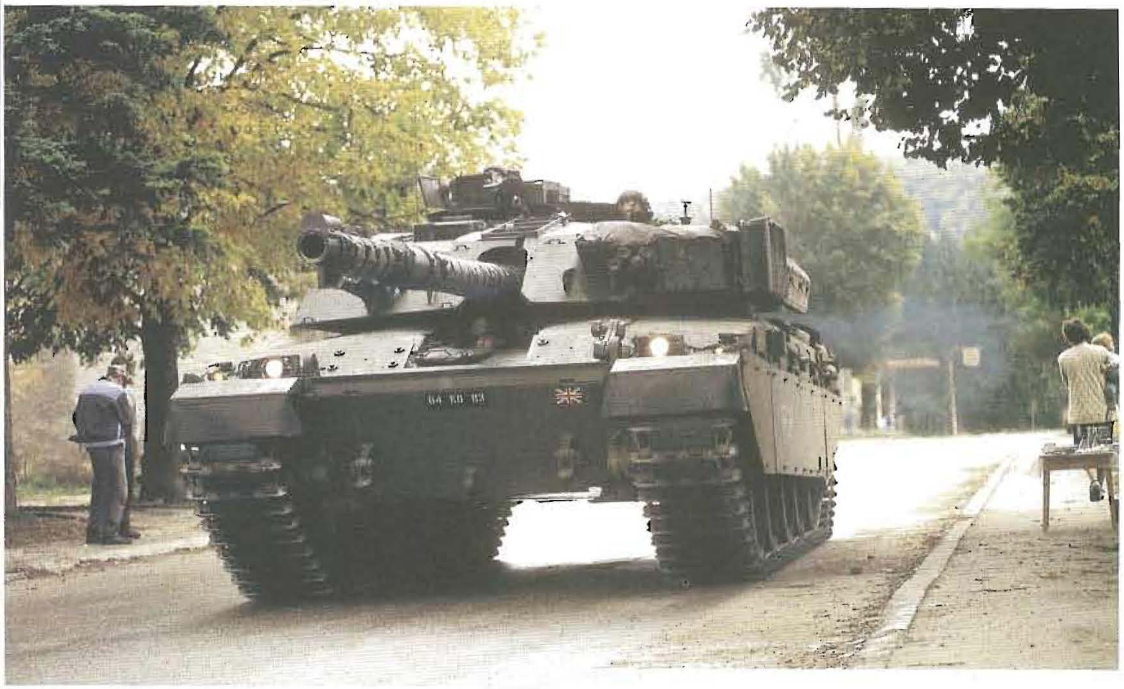




In June 1996, two Sabre squadrons from 1st Queen's Dragoon Guards were deployed from Sennelager, Germany to an area near Mrkonic Grad in western Bosnia. The unit was to support the British-led Multinational Division Southwest (MNDSW). "C" Squadron was attached to the 2nd Canadian Brigade. (Walter Böhm)

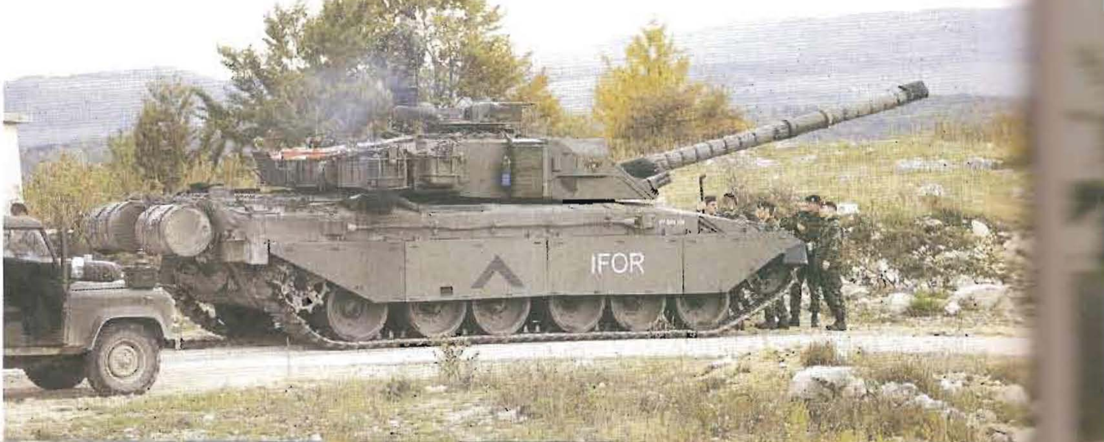


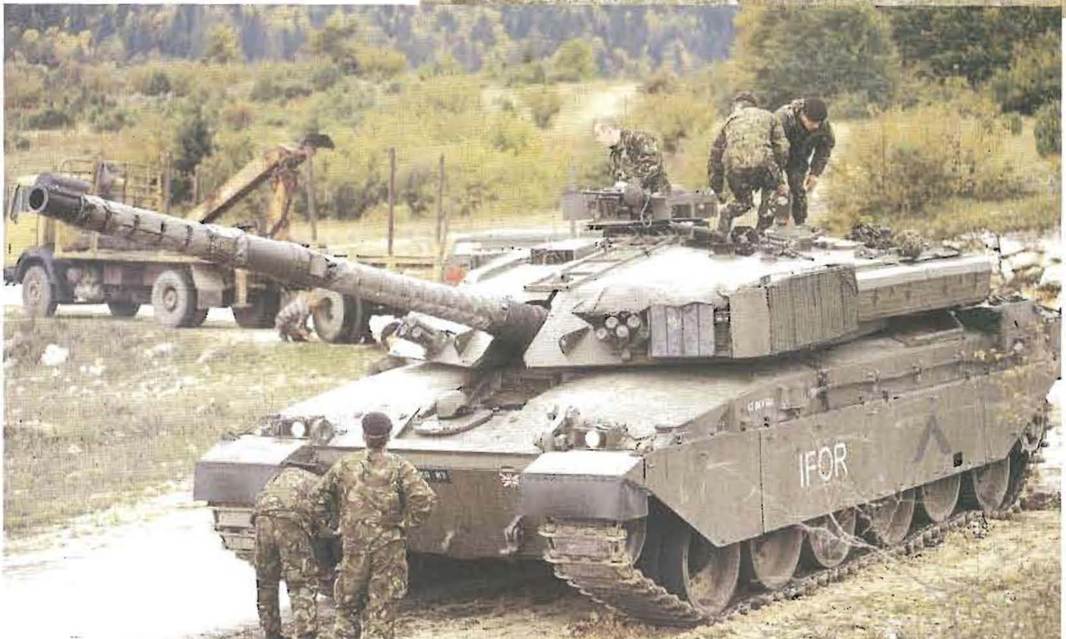
"D" Squadron of 1st Queen's Dragoon Guards was attached to 1st Bn., "The Worchestershire Sherwood Forest Regiment". In the area under control of the 1st (UK) Mech. Bde. (nicknamed "The Anvil"), one of the largest land exchanges between the former opponents occured following the Daytona peace agreement. (Walter Böhm)



In February 1996, the region
of the Croatian border to the
Sarajevo was deserted. The tow
in ruins and the houses had a
pillaged. Here a Challenger 1 Mk.
QDG thunders through the to
Braci during a Quick Reaction
patrol. Bosnian Serbs were
inhabitants of this town. During
patrols, the armored troops op
three Challenger 1 MBTs an
Scimitar recce tanks. Later on,
than 30,000 Bosnian Serbs retur
this area. (Walter Böhm)

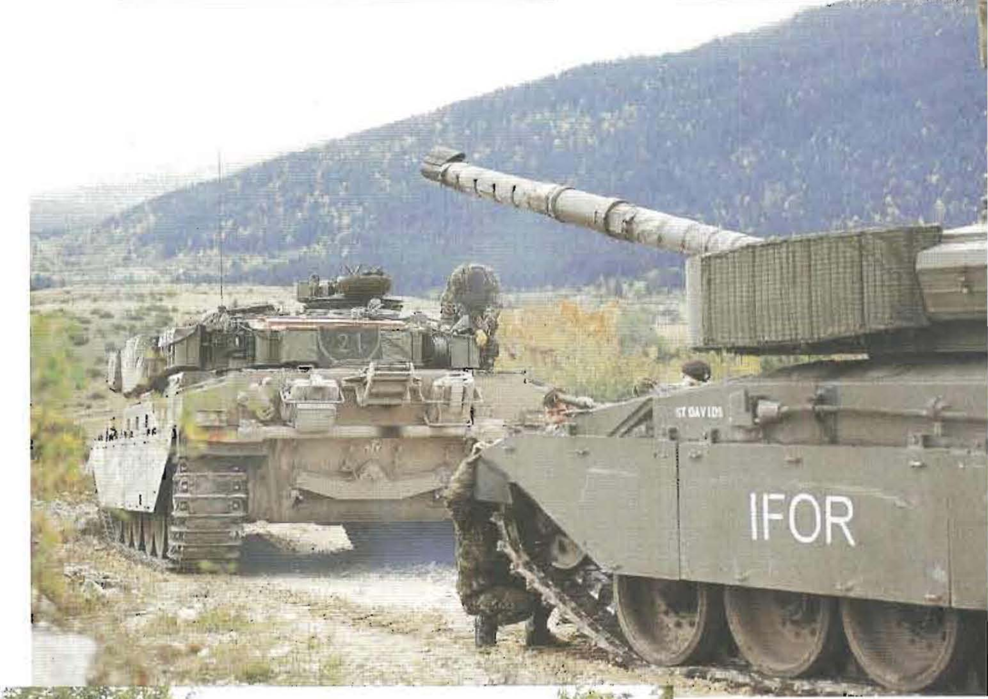
During Operation "Resolute", the QDG Challenger 1 Mk.3s wore a single-color (bronze-green) overall paint scheme, not the British Army's standard camouflage of black splotches on a green base. There are no squadron, troop or call sign markings on the side skirts. Notice the additional fuel drums fitted on the rear. (Walter Böhm)

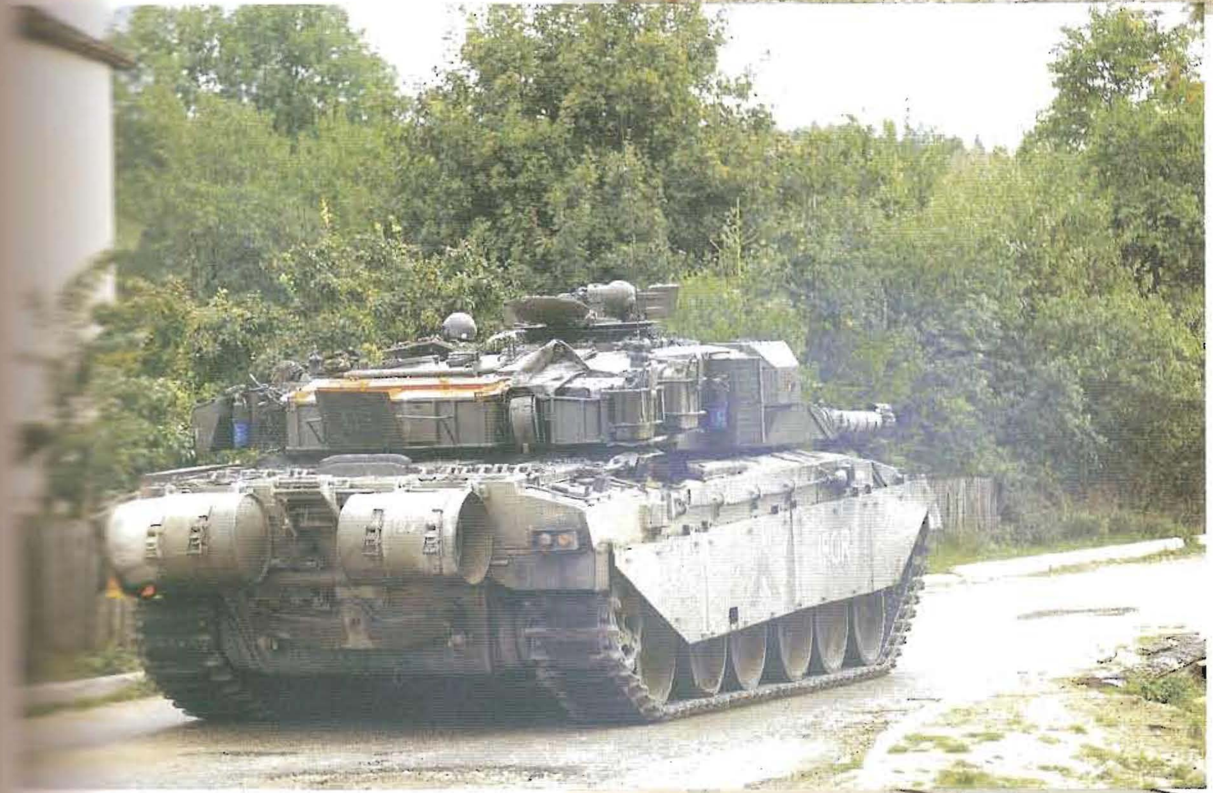




Three-quarter view of a Challen
1 Mk.3 from "D" Sqn., QDG. On the s
skirts is the IFOR (Implemeta
Force) stencil and the subdued chev
marking reminiscent of the Gulf W
Notice the Union Jack flag beneath
vehicle's registration number on
front plate. The regimential insignia
QDG, the red dragon of Wales,

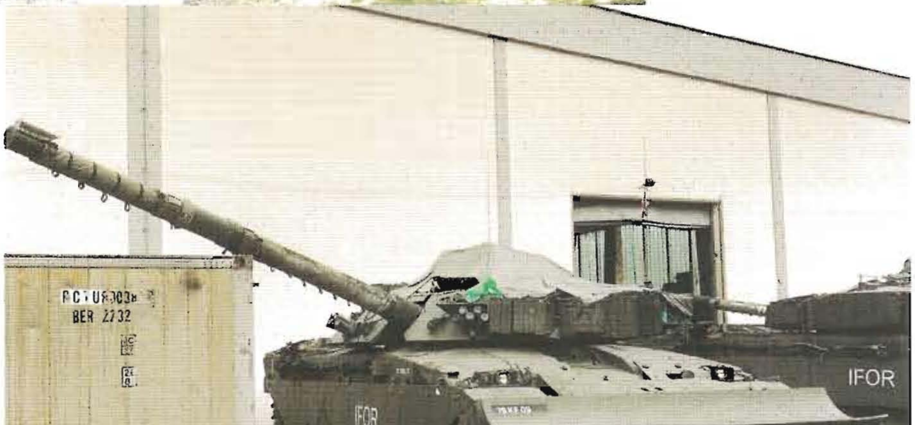
Above the IFOR stenciling on the hull of this Challenger 1 Mk.3, you can recognize the name "St. Davids", the name of a town in the regiment's recruiting area in Wales. Notice the Chieftain toolbox on the turret. The metal plate attached to the rear of the turret of the QDG Challenger 1 Mk.3 denotes "D" Sqn. with the number "21". (Walter Böhm)



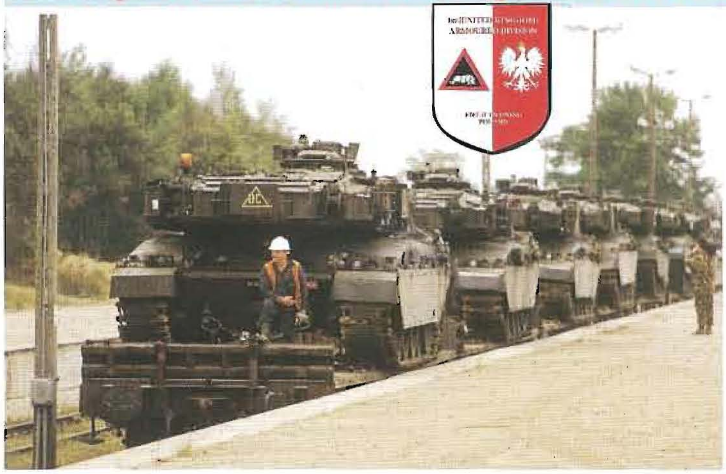


Patrol in the ZOS. The call sign "Zero Bravo" (0B) indicates the squadron leader's tank of "D" Sqn., QDG. The top of the box on the turret basket was painted orange for easier indentification by NATO aircraft. The vehicle's registration number (84KG83) is visible on one fuel barrel. The crew often uses the empty fuel drums for additional stowage. (Walter Böhm)

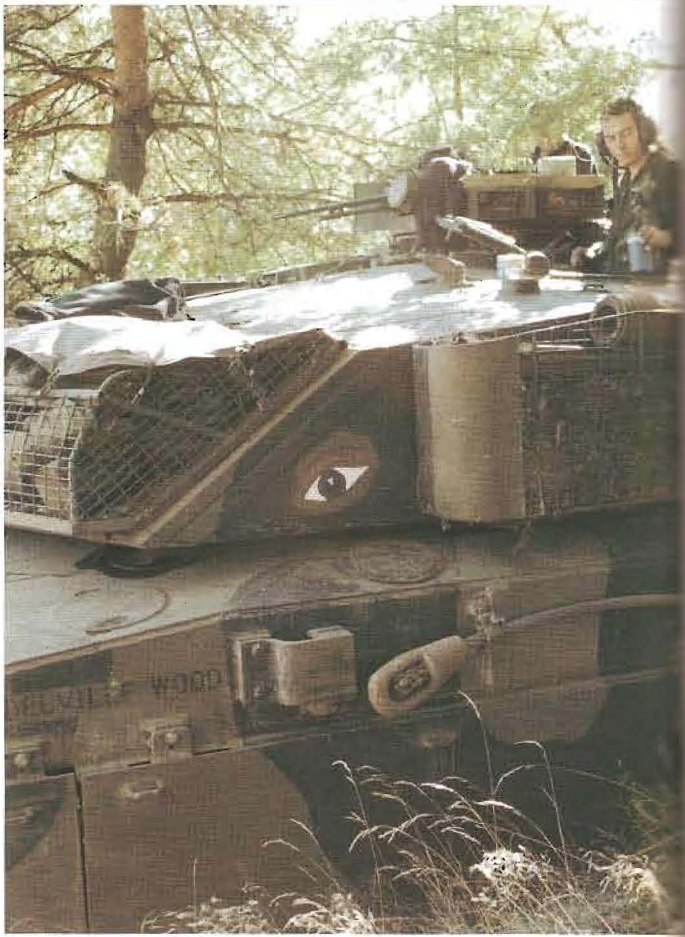
Challenger 1 Mk.3 of QDG equipped with the Pearson Engineering Combat Dozer Blade Kit. Here the blade is in the traveling position. Typical tasks for the dozer kit include clearing obstacles on roads, digging combat positions, crossing anti-tank ditches, and preparing defensive positions. (Walter Böhm)



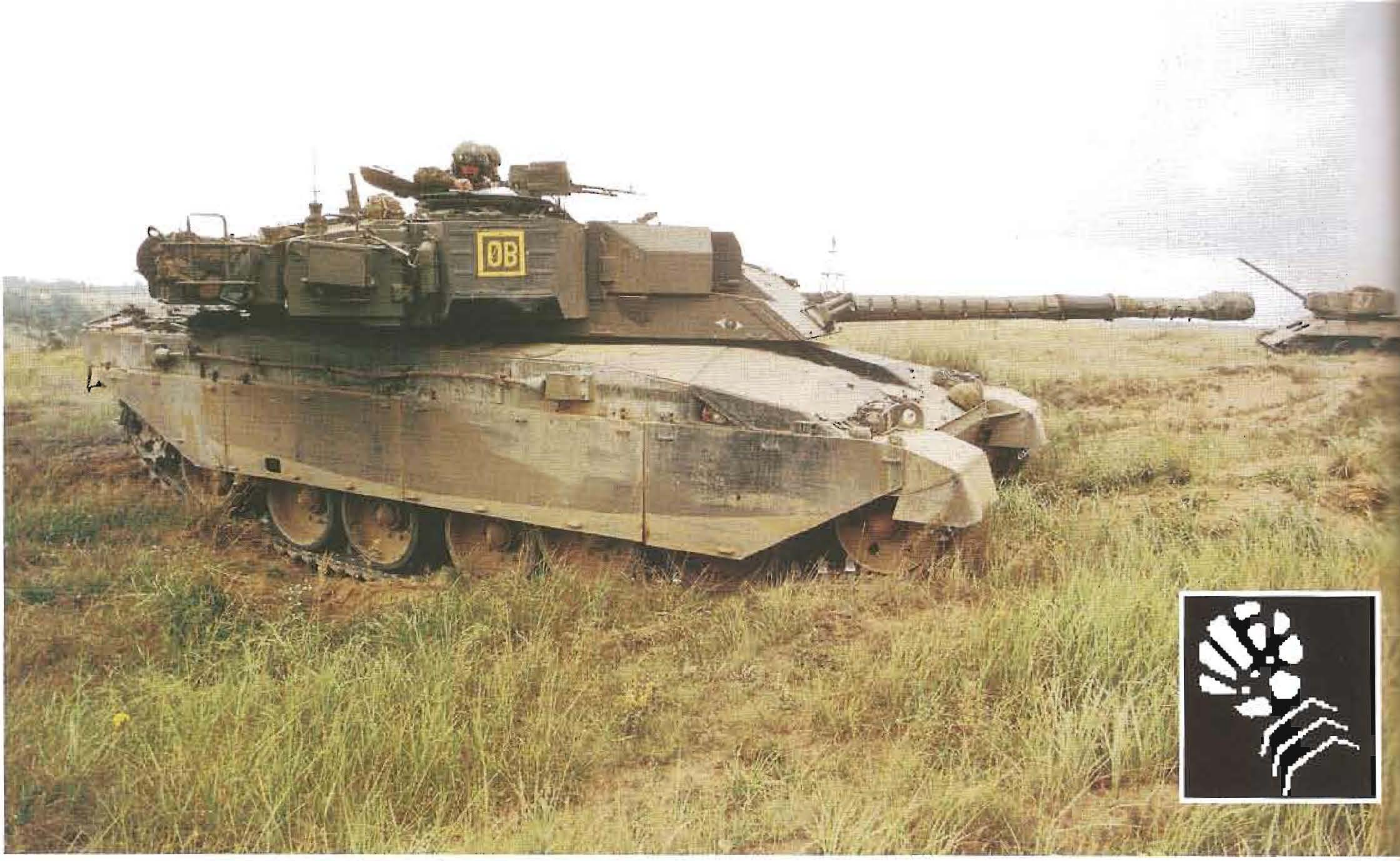
Challenger 1 of 1st (UK) Armd. Div. during the exercise series "Ulan Eagle" (1996 – 1999) at DPTA, Poland



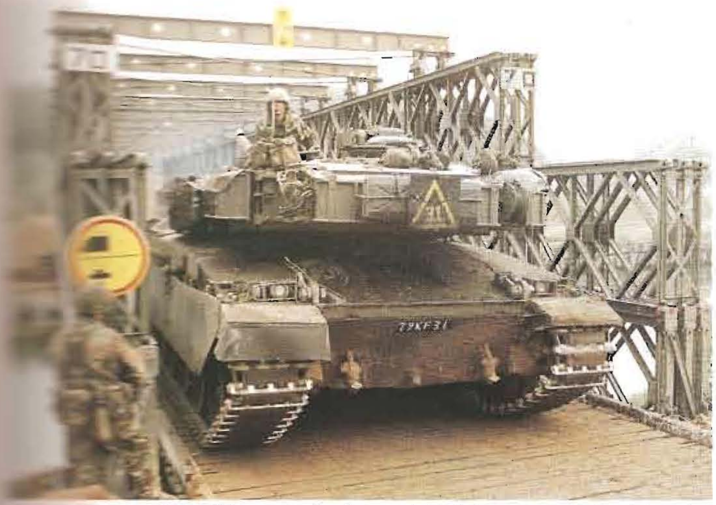
After the Gulf War, most of the Germany-based British troops of 1st (UK) Armd. Div. felt a lack of training. Many limitations made it impossible to train in combined warfare up to the brigade level on German ground. After the breakup of the Warsaw Pact, some former Eastern-bloc nations opened up to Europe and NATO. Poland was the first country to permit NATO forces to train in their territory. Since 1996, each autumn one brigade of 1st (UK) Armd. Div. has deployed from their bases in Germany to the Drawsko-Pomorske training area in northern Poland. During Exercise "Ulan Eagle 97", more than 450 armored vehicles were transported by 14 trains from Paderborn, Germany to Poland. (BFG)



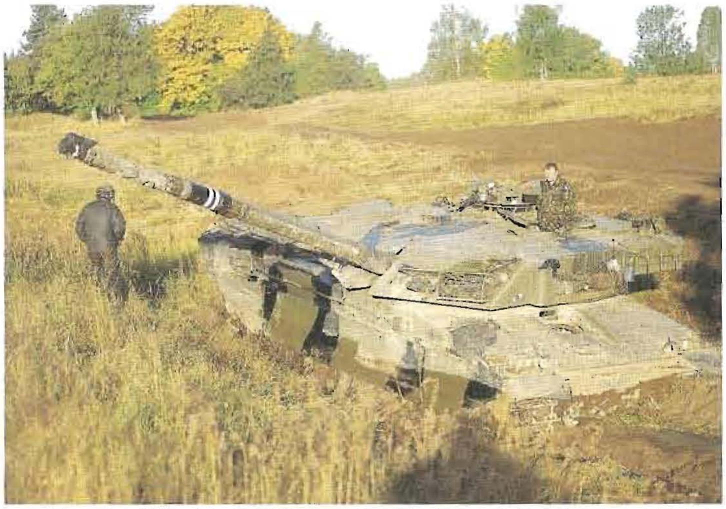
The 4th RTR commemorates its beginnings by painting "Chinese Eyes"on their tanks. This tradition can be traced back to World War One when in 1918 a Chinese buissinesman, Mr. Eu Yew Tong, presented money to the 4th RTR to buy new tanks. During the presentation, the businessman requested that eyes be painted on the new tanks. According to Chinese superstition, these symbolic eyes make sure the tanks can see and always find the right way. (Walter Böhm).



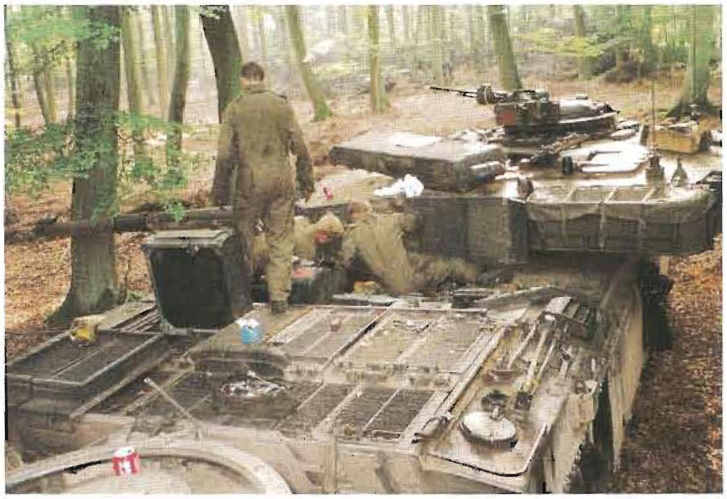
"Chinese Eyes" Challenger 1 Mk.3, call sign "Zero Bravo", of "B" Sqn., 1st RTR, 20th Armd. Bde. during an attack against OPFOR troops at Exe



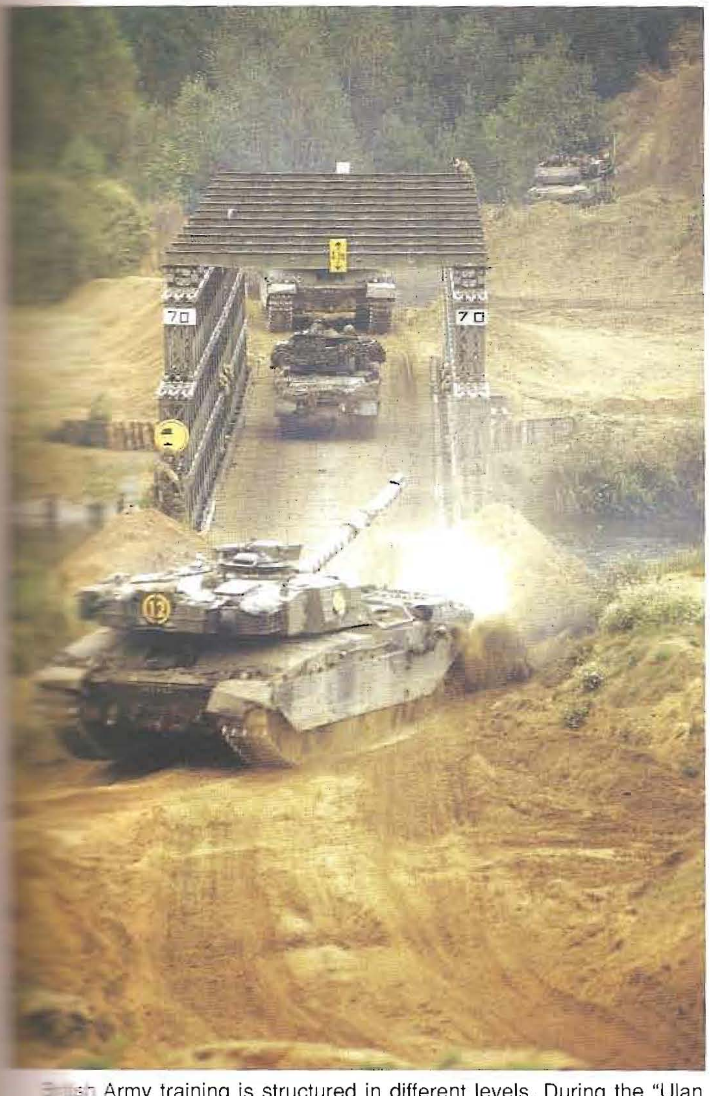
During the Cold War era, Soviet and Polish troops trained for the ground war against NATO in the Drawsko-Pomorske area of Poland. Since the late 90s, British Challenger tanks have used this training area. The Drawsko-Pomorske Training Area (DPTA) is spread over 400 square kilometers (248 square miles), which is larger than all the British training areas in Germany or England. Here a Challenger 1 Mk.3 from 1st RTR crosses over a Bailey bridge built by British engineers. (Walter Böhm)



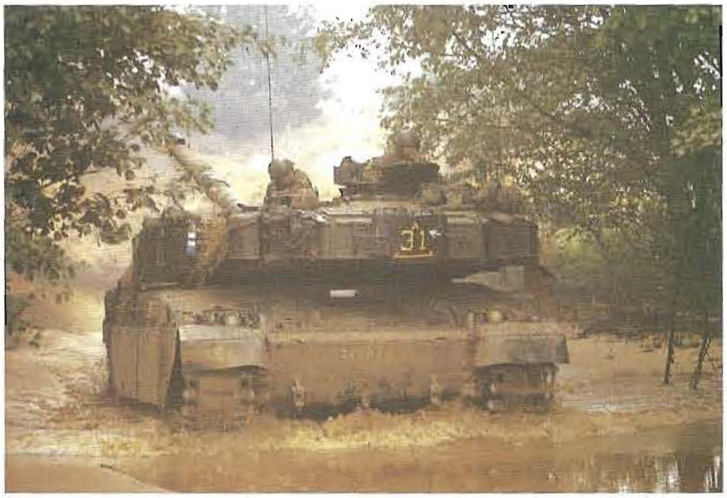
Exercise "Ulan Eagle 97" was the main focus of the 20th Armd. Bde.'s training year. The crew of this stalled Challenger 1 Mk.3 from 1st RTR is waiting for a CRARRV to arrive. Apart from the "Chinese Eyes" and the two rings on the gun barrel (representing the 2nd Troop), there are no tactical signs on this tank. (Walter Böhm)



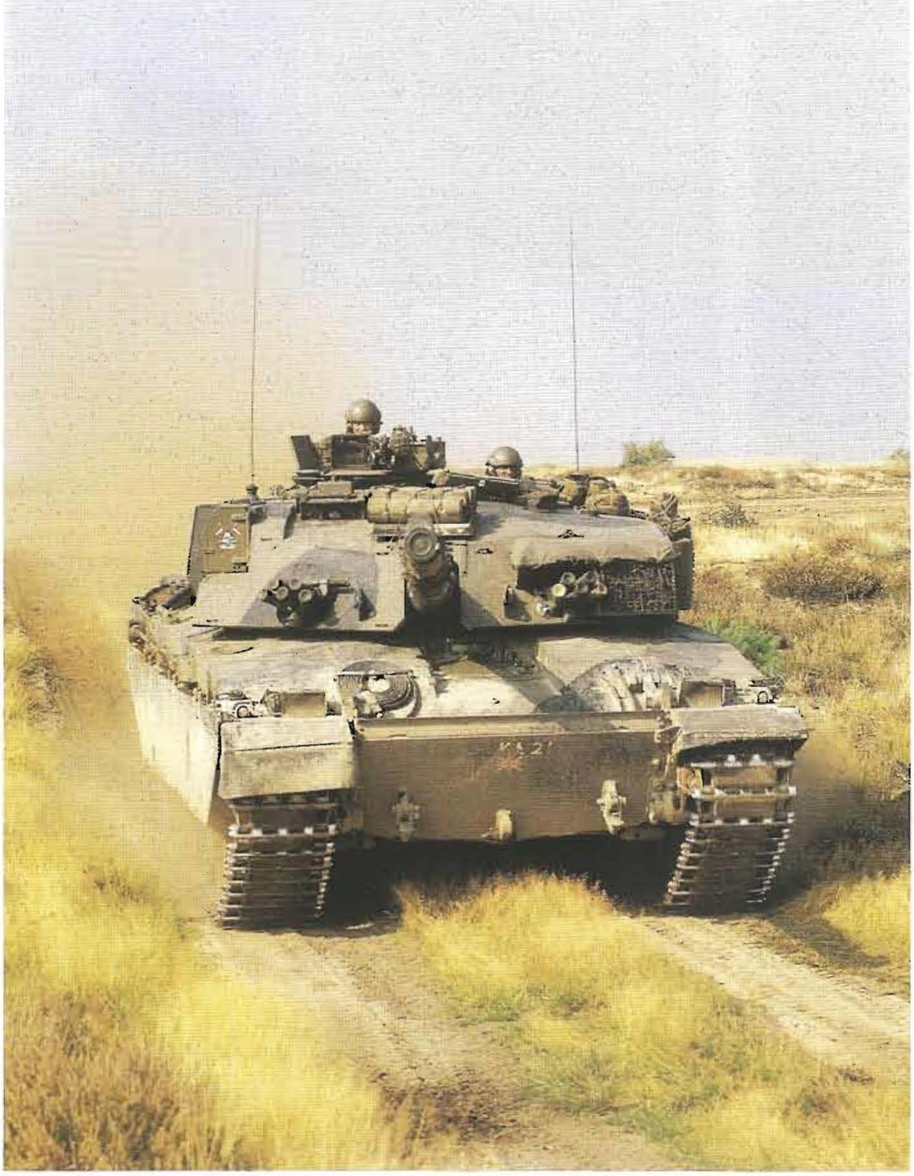
"Challenger Maintenance." During the battle preparation phase of the different training missions, all disabled tactical vehicles are repaired and maintained under "real mission" conditions. A pair of "Or Glory" boys (the Queen's Royal Lancers) work during "Ulan Eagle 98" on the Challenger 1 Perkins Condor 12-cylinder engine. Notice the air cleaners on the main engine's radiator. (Walter Böhm)



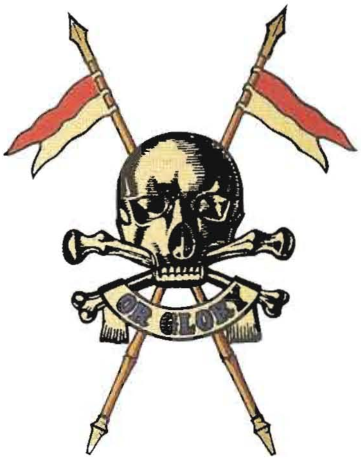
British Army training is structured in different levels. During the "Ulan Eagle 97" FTX series, the troops achieve level "CP-5". This means a [illegible]-scale unit is fully prepared for combined arms operations. During the training in status "CP-5", a fully equipped brigade is supplied with a [illegible] framework. (Walter Böhm)



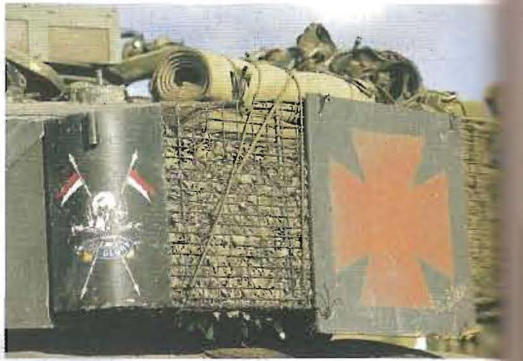
The many rivers and small lakes located in the DPTA provide troops with excellent natural training conditions. Every possible mission is practiced during the three weeks of exercises in Poland: Day/night moves, obstacle crossing, brigade attacks, counterattack, and hasty defense. The Challenger 1 fording capability is up to 1.07 meter without special preparation. (Walter Böhm)



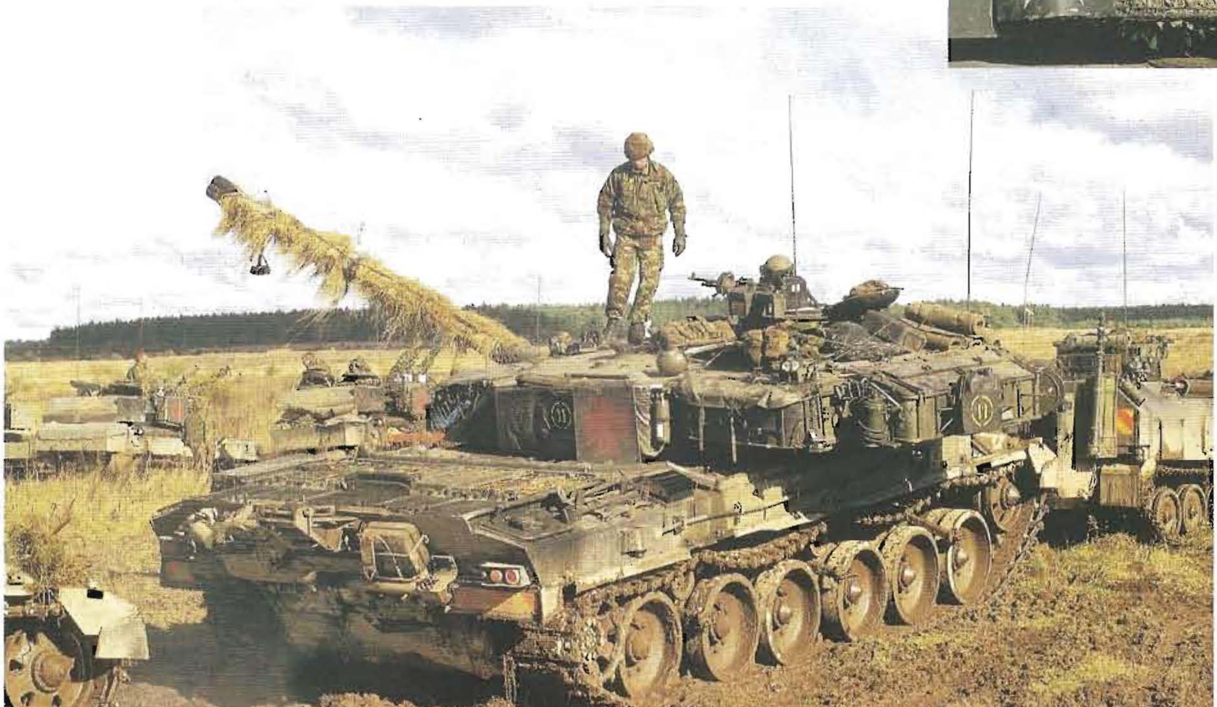
Challenger 1 MBT of the Queen's Royal La
during a flank attack near the "Eagle's Nest" (a fo
Soviet military observation point). The Queen's R
Lancers (QRL) was formed in 1993 as a result of
merger of the 16th/5th Queen's Royal Lancers an
17th/21st Lancers. Both regiments, whose hist
trace back to 1689 and 1759, respectively, ha
highly distinguished past with battle honors that inc
Balaclava, Aliwal, Omdurman (Sudan), Cambrai, a
Cassino. (Walter Böhm)



Emblem of The Queen's Royal Lancers. Uniq
the regiment does not have a cap badge, bu
famous skull and crossbones and the words "Or G
are known by all as the regimental motto. (W
Böhm)



All Challenger
from the QRL
marked with large
iron crosses
symbolize the OP
role during "Ulan Ea
99". (Walter Böhm



OPFOR
Challenger 1. The
acted as the enem
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99" exercise.
Challenger 1 of
Sqn., QRL
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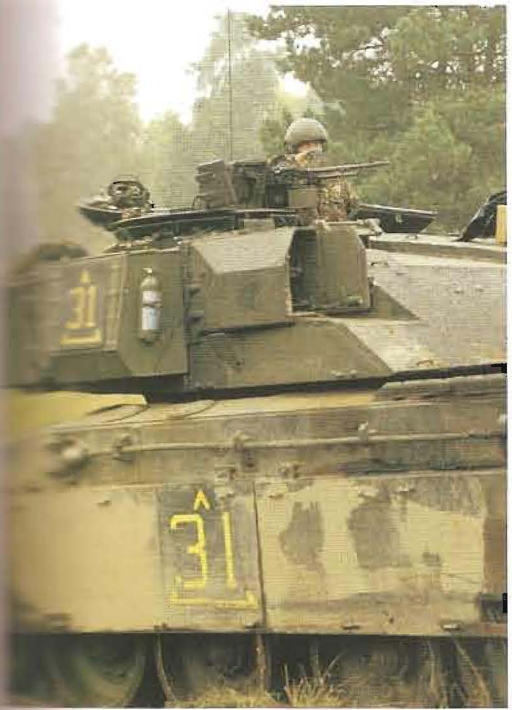
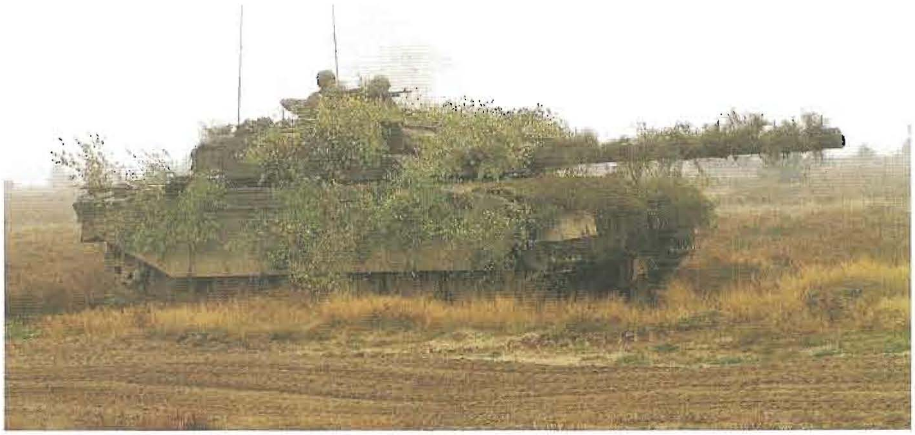


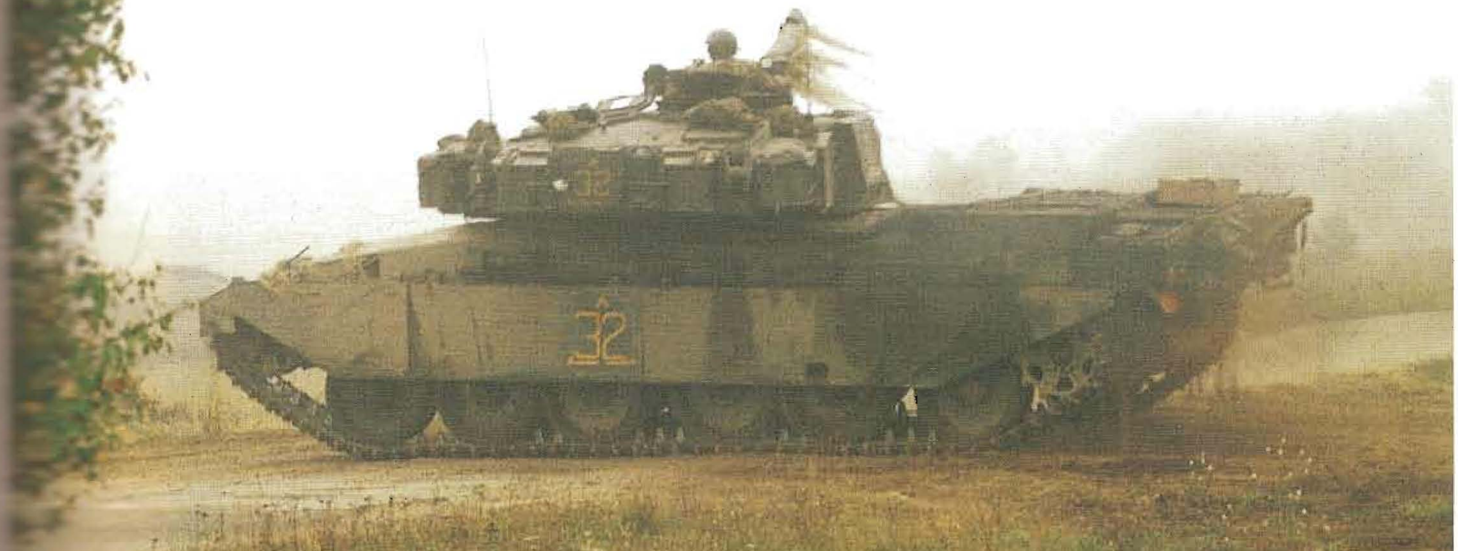
The "Black Rats" emblem of the 4th Armd. Bde. is painted on the TOGS barbette of this Challenger 1 (c/s "Three One") from "A" Sqn., KRH that is taking part in exercise "Ulan Eagle 98". The King's Royal Hussars (KRH) was formed in 1992 by merging the Royal Hussars (Prince of Wales' Own) with the 14th/20th King's Hussars. The KRH can trace their history and traditions from the 10th, 11th, 14th and 20th Hussars back as far as 1715. (Walter Böhm)



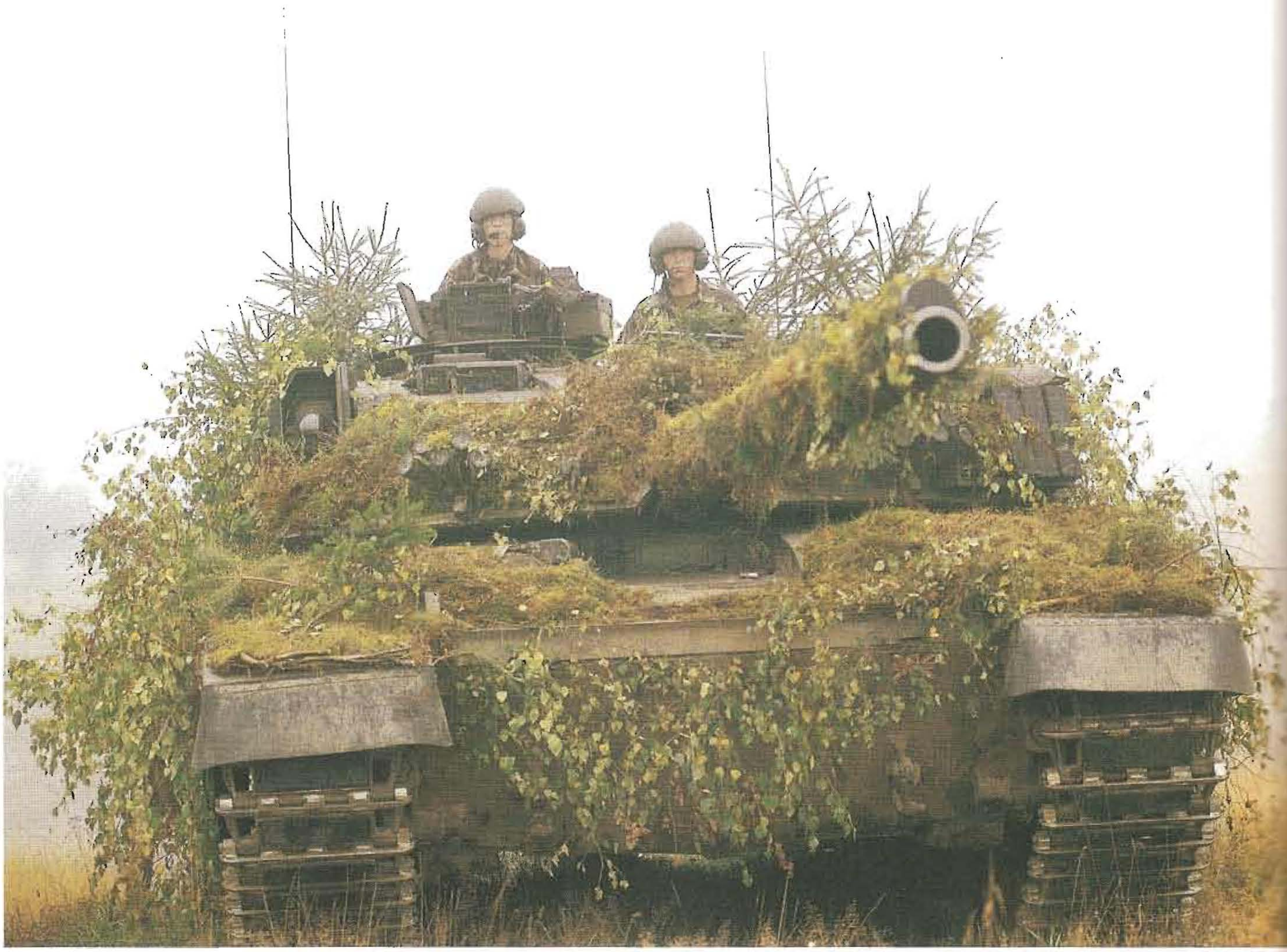
KRH Challenger 1 in the line of fire. Throughout the battle group exercise phase of "Ulan Eagle 98", the KRH Challengers worked as a reserve unit for the 4th Armd. Bde. They awaited – well-camouflaged – on a plateau for the chance to strike. After an attack on the line of defense by Polish T-72M MBTs (OPFOR) was stopped by British anti-tank teams, the KRH Challengers counterattacked on the OPFOR's flank and "destroyed" the hostile tanks. (Walter Böhm)

4TH ARMOURED BRIGADE

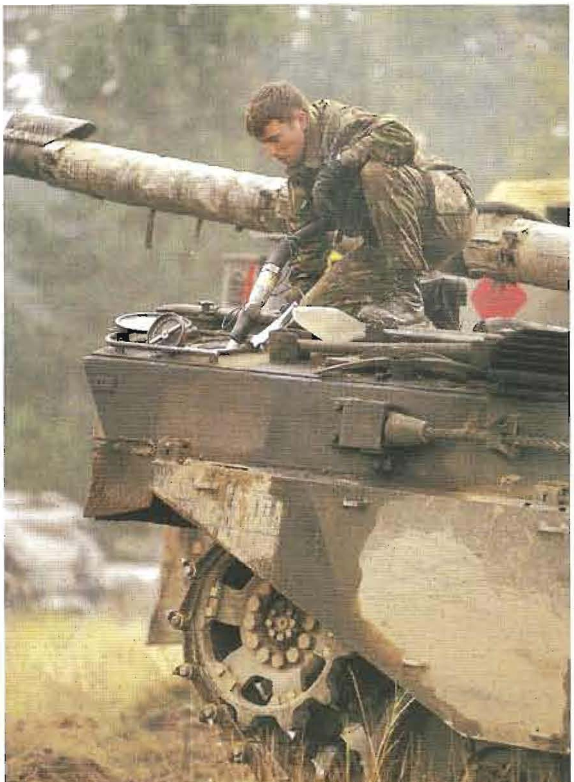
EX ULAN EAGLE
1998

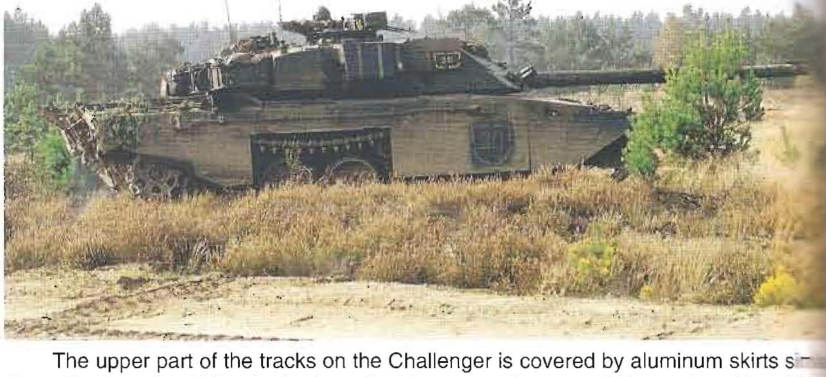


"Contact!" A KRH Challenger 1 attacks a Polish T-72M MBT. During "Ulan Eagle 98", the opposing force (OPFOR) was played by the 2nd Battalion, The Royal Regiment of Fusiliers with 21 Warrior APCs and 10 T-72M tanks from the Polish 12.Dywizja Kawalrii Pancernej (12th Polish Armored Division). For the KRH Challenger 1 (Blue Force), this exercise was an excellent opportunity to compare the Challenger 1 with its former enemy, the T-72 MBT. (Walter Böhm)



“Ambush in Camouflage.” An impressive front view of a heavily camouflaged Challenger 1 from KRH. This natural camouflage of twigs, turf an fir trees was very effective in the KRH line of defense during “Ulan Eagle 98”. (Walter Böhm)

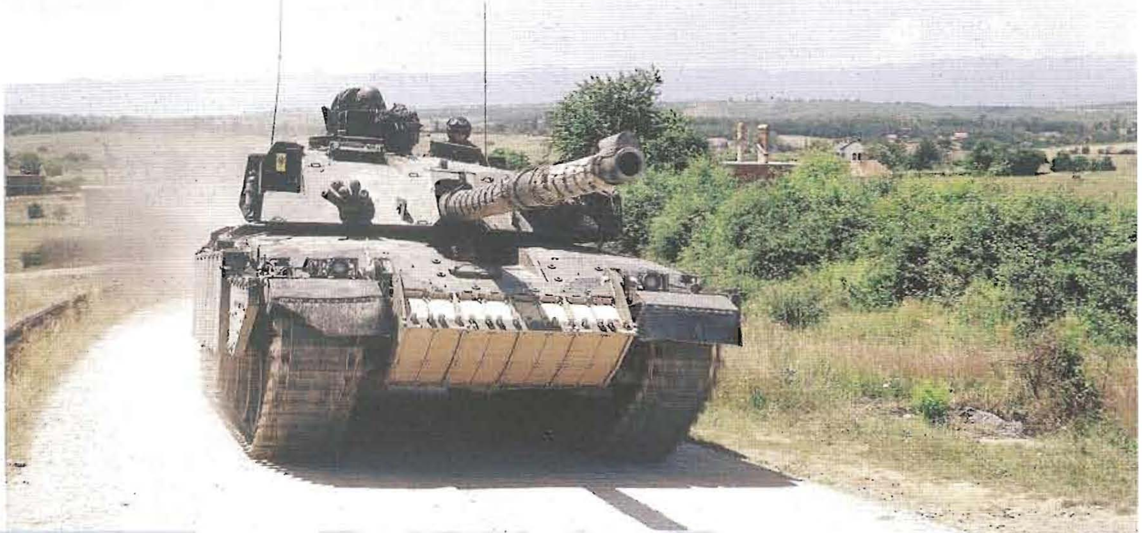


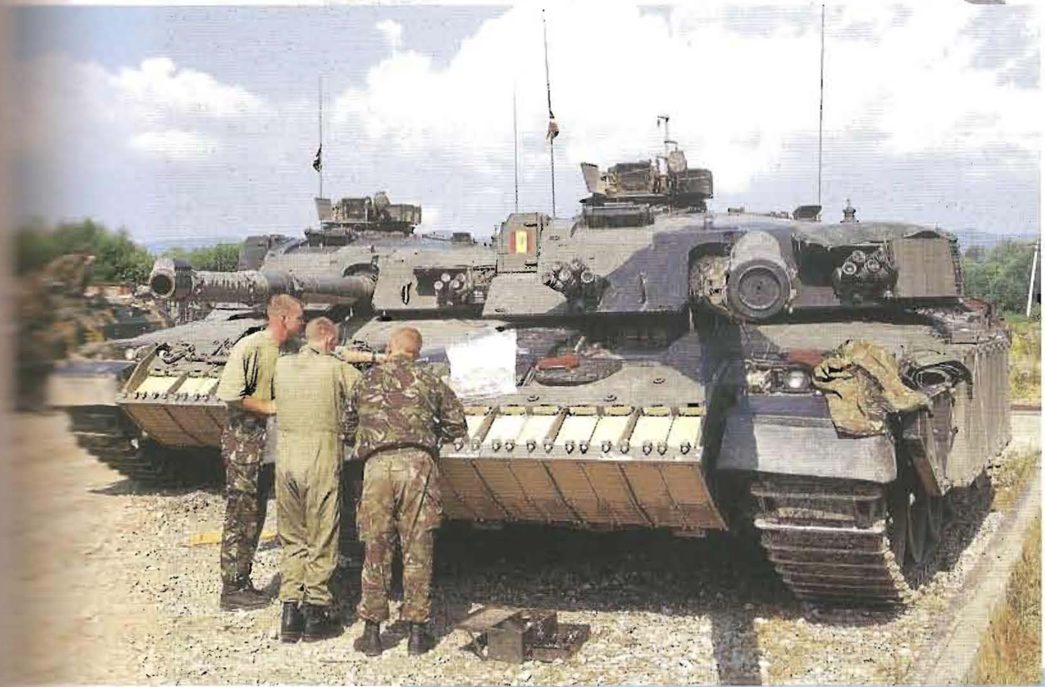


The upper part of the tracks on the Challenger is covered by aluminum skirts si those fitted on the Chieftain. In time of crisis or war, these would be replaced by ski Chobham armor. These were first deployed during the 1990-91 Gulf War. Here a Challenger 1 is seen during a hasty defense operation during “Ulan Eagle 98”. The c/s and squadron markings are unusually large. Note the loose track. (Walter Böhm)

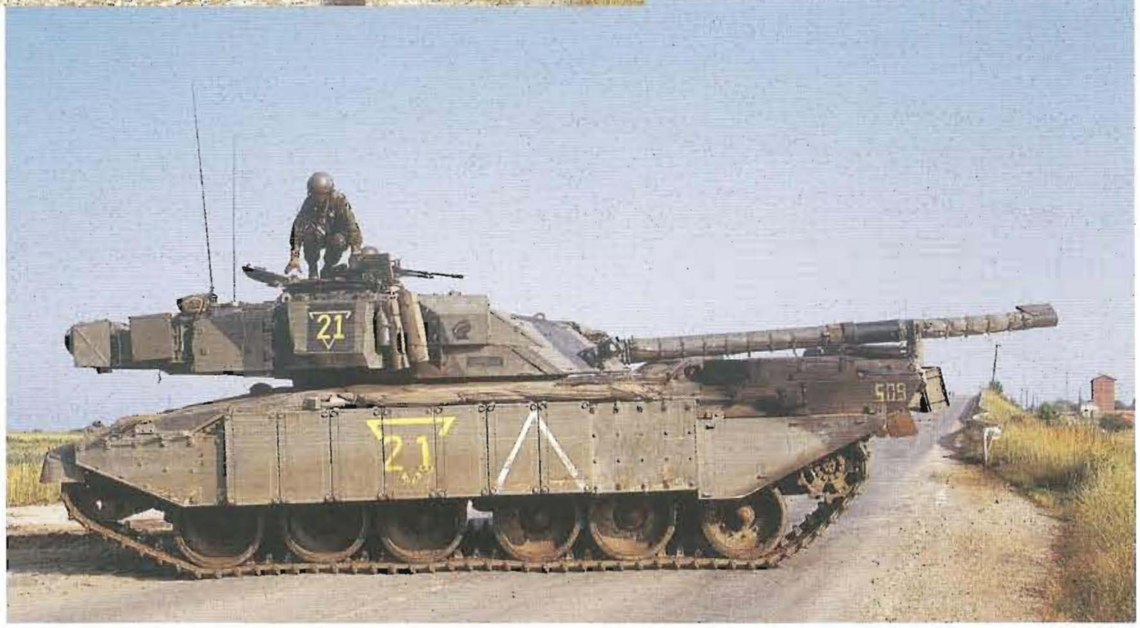
Without external fuel tanks the useable diesel capacity of Challenger 1 and 2s is liters (420 gallons). The Challenger 2 is powered by a V-12 diesel fuel engine from P

"Road to Pristina." The 4th Armd. Bde. of NATO's divided into two battle before the invasion on 1999 from Macedonia Kosovo. The Irish Guards Group and the King's Hussars Battle Group. this, during the night, of the 1st Para and Royal Gurkha Rifle occupied all strategic points and in an airmobile secure the advance of Royal Hussars. (Carl

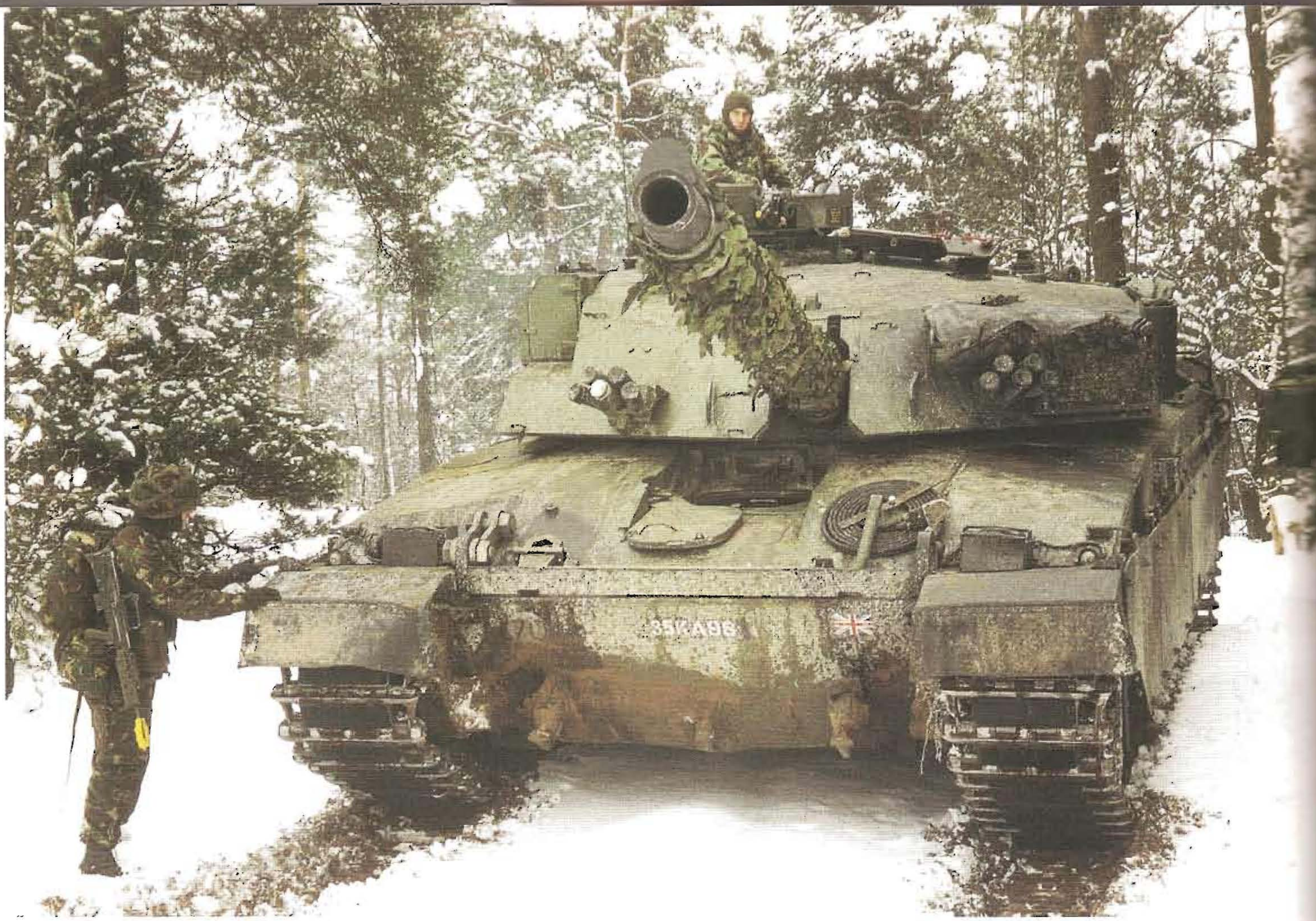




"Taking a Break in Kosovo." The KRH deployed 28 Challenger 1 Mk.3s to Kosovo. The KFOR expected resistance from the retreating Serb units so, as a precaution, all KRH Challenger tanks were fitted with Chobham applique armor kit, whose reliability was proven in the Gulf War. Note that the front add-on armor is still painted yellow and the King's Royal Hussars insignia has been applied to the TOGS. (Carl Schulze)

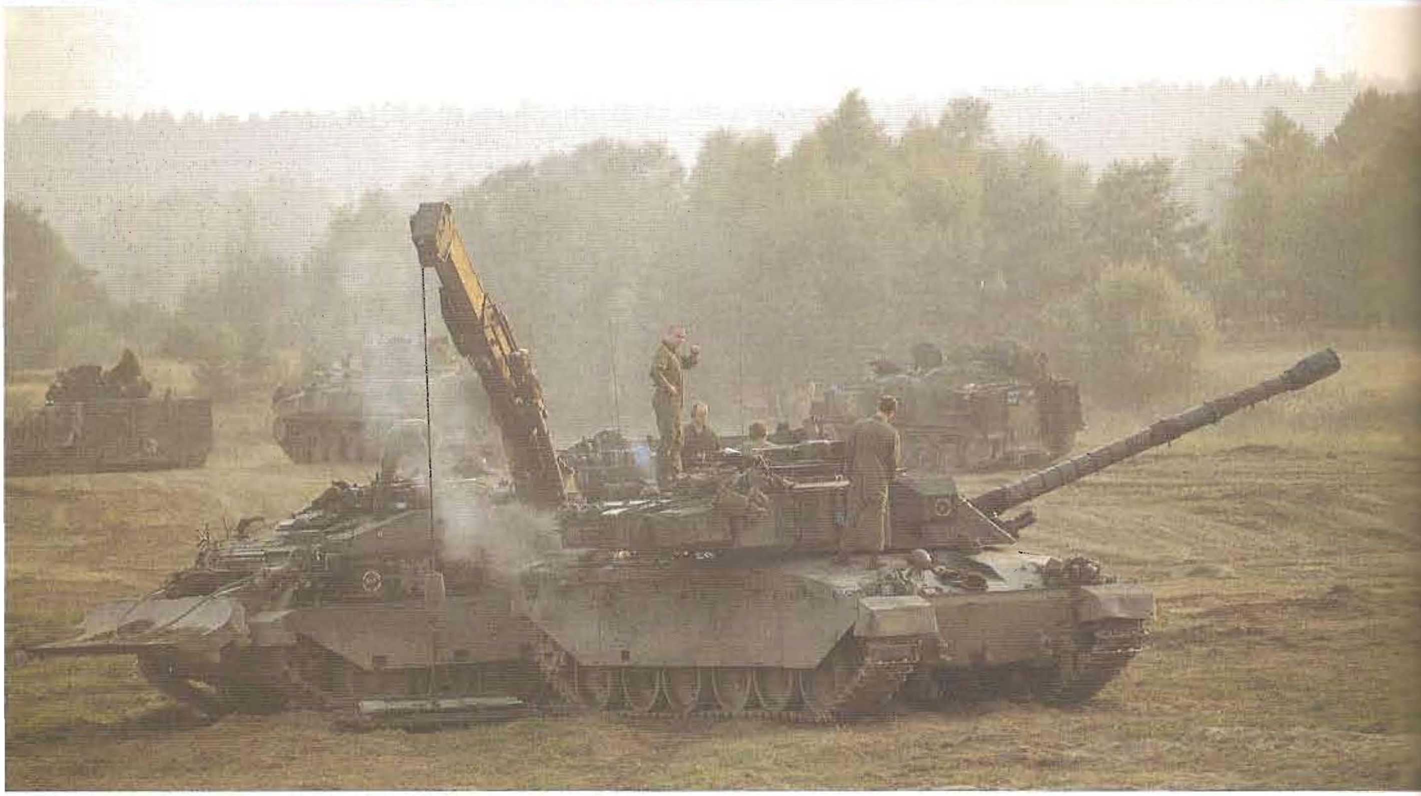


enger Roadblock." A 1 Mk.3 (c/s "Two One" from 2nd Troop, KRH) creates a on the main road to Pristina Operation "Joint Guardian" in June of 1999. Notice the on the Challenger 1 Mk.3; the tactical stenciling were painted The turned chevron "A" Sqn., which is typical for tanks. Next to this is the inverted coalition sign during the Gulf The number "509" is the unit This tank had no KFOR Visible near the TOGS is a the traditional insignia of Armd. Bde. based in Germany. (Carl Schulze)

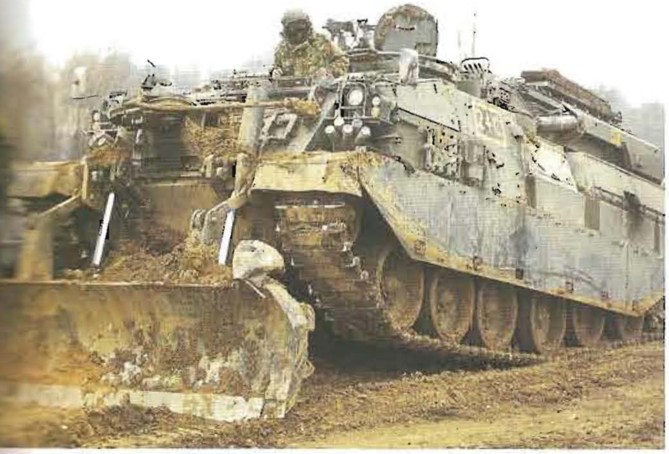


The era of the Challenger 1 is over. This Challenger 1 from "B" Sqn., QRH is manned by soldiers from "D" Sqn. because the regiment re-equipped the winter of 1998-99 from Challenger 1s to Challenger 2s. By the time Exercise "Purple Plain" was held in February 1999 at Sennelager training area Challenger 1s were on their way back to England. (Daniel Nowak)

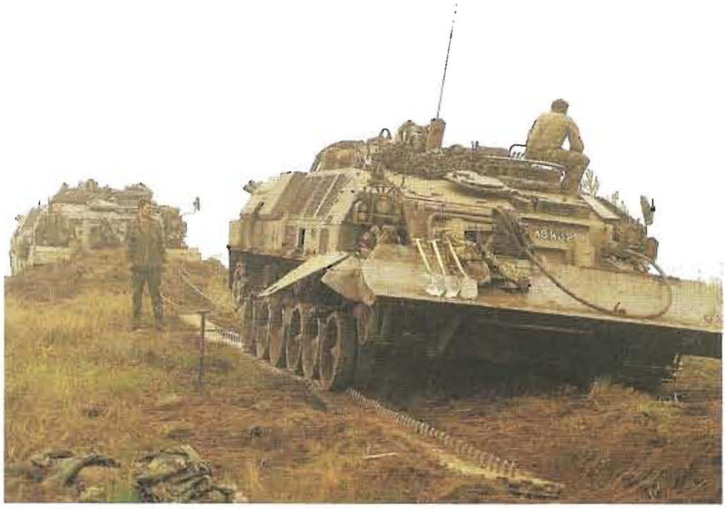
CRARRV – Challenger Armoured Repair and Recovery Vehicle



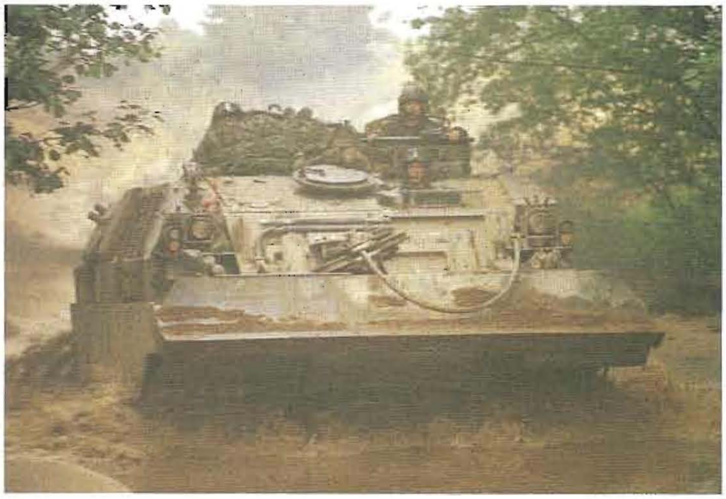
The CRARRV can be used for both the recovery and repair of main battle tanks in the field. The Atlas AK 6000 M8 hydraulically operated crane



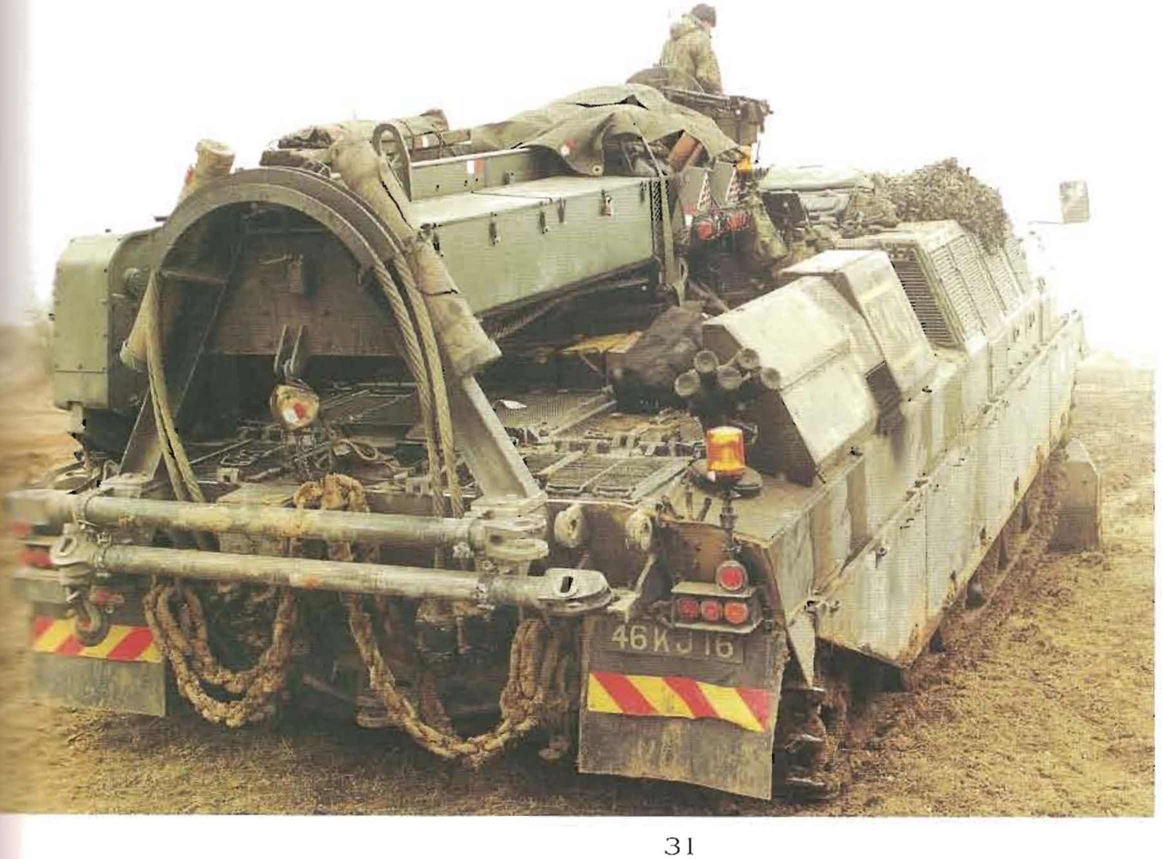
the multipurpose blade , the CRARRV can operate as an earth dozer blade or crane stabilizer. In the role of an earth anchor, the can withstand the power of the double reversed main winch. A of 2nd RTR is seen here during Exercise "Prairie Progress 96 ". Böhm)



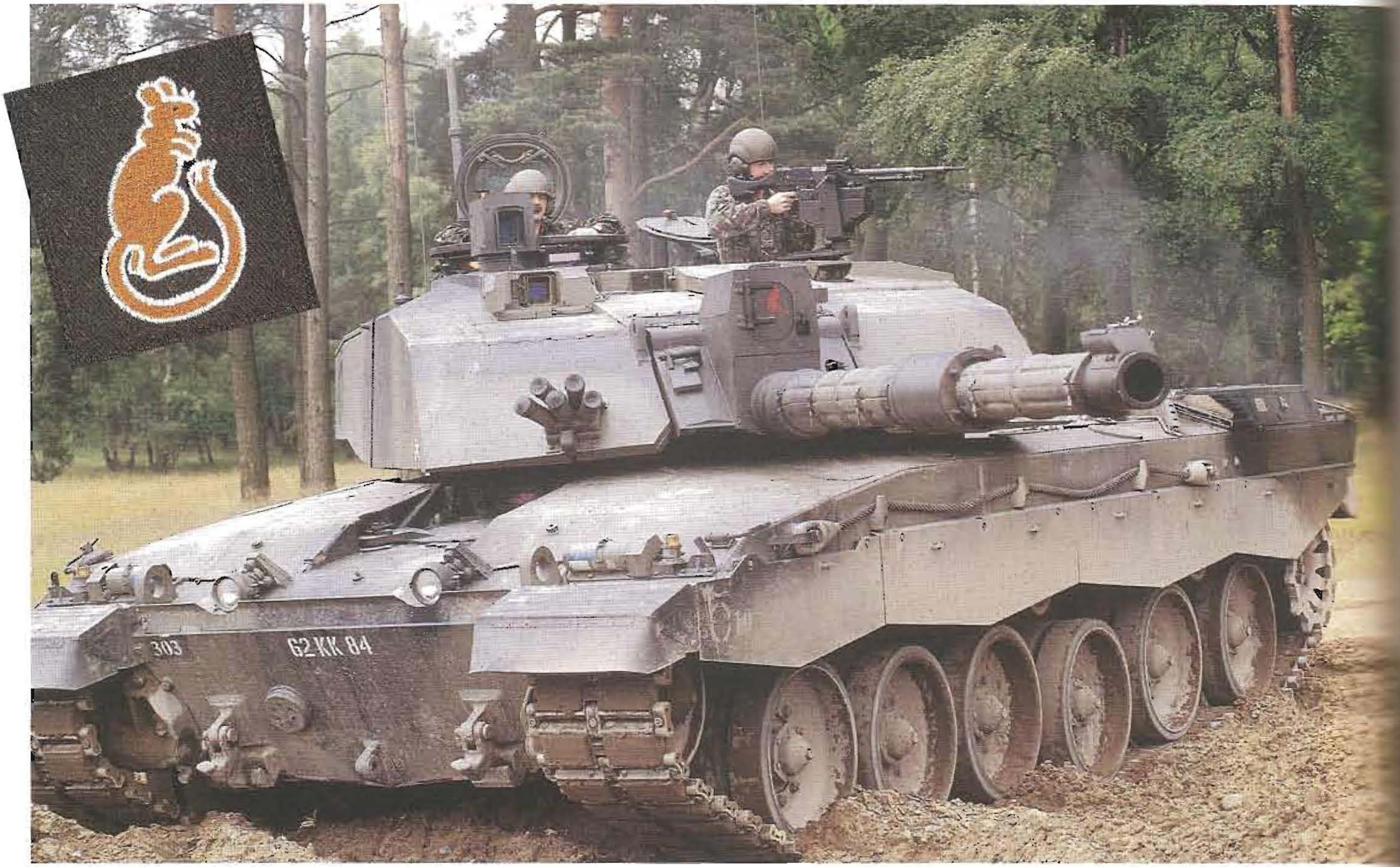
Even strong recovery tanks sometimes have their tough times. The CRARRV can tow vehicles up to 68 tons under difficult circumstances and in difficult terrain. Here a CRARRV from KRH performs a challenging job during "Ulan Eagle 98". (Walter Böhm)



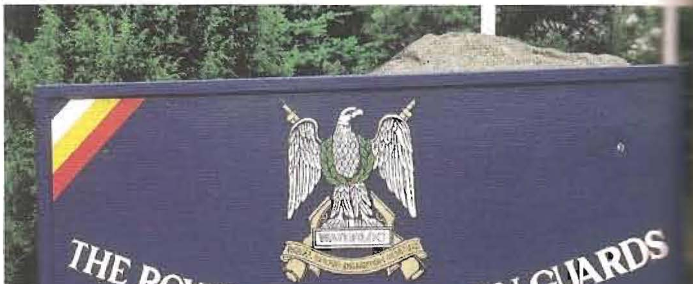
"Rhino" – first the nickname, then the official name of the CRARRV a wide range of repair equipment, including a crane, welding and equipment, and air tools. It also has stowage for spare parts and can a spare Challenger CV-12 powerpack above the rear engine But the CRARRV cannot be used on civilian streets in Germany of the weight limitation of roads and bridges. On city streets, the is mounted on a Warrior trailer. (Walter Böhm)



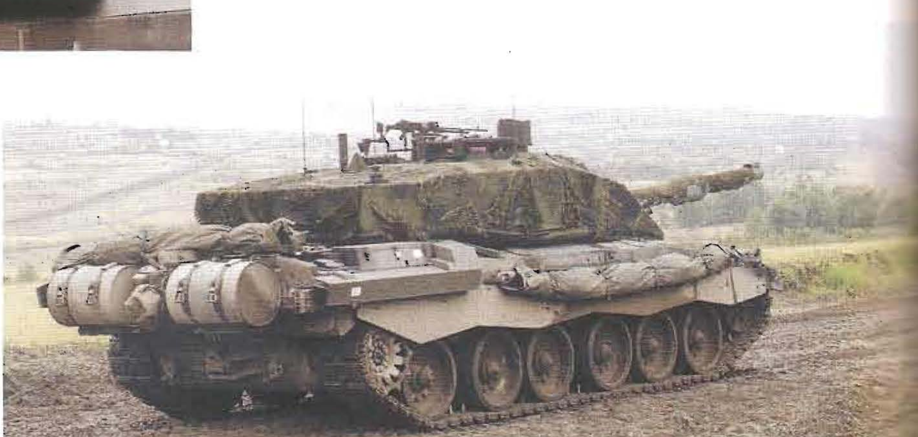
The Challenger Armoured Repair and Recovery Vehicle (CRARRV) is an innovative vehicle. The TN-54 transmission provides excellent mobility and battleworthiness. The tank, which is operated by a basic crew of three, can carry up to four additional crew passengers. (Walter Böhm)



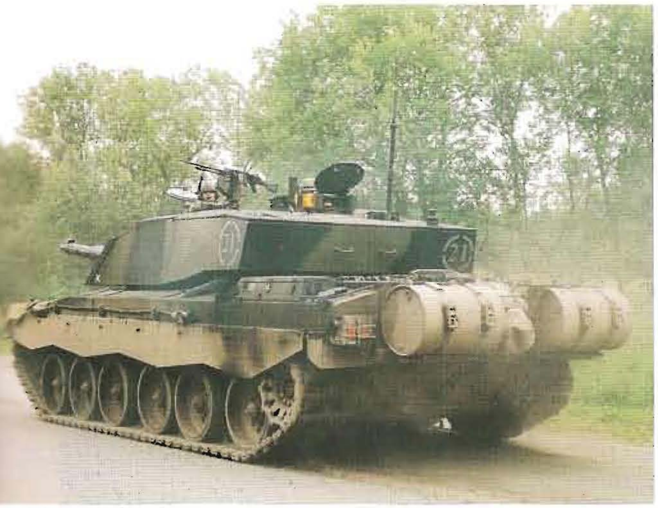
On June 30, 1998, Vickers Defence Systems (VDS), the main contractor for the Challenger 2, handed over the first Challenger 2 MBT to the Army at Camp Bergen-Hohne, Germany. (Walter Böhm)



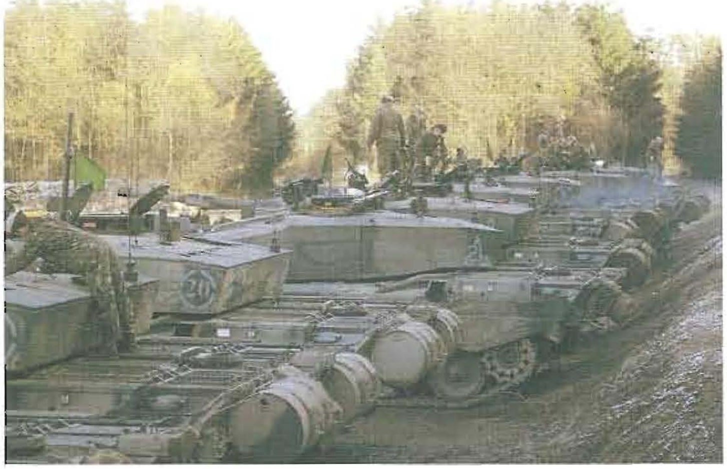
The Royal Scots Dragoon Guards was the first armored regiment in the British Army to be equipped with the brand new Challenger 2. This unit belongs to the 7th Armd. Bde., 1st (UK) Armd. Div., which is based in Fallingbostel, Germany. The tanks were marked with the red Jerboa symbol of the 7th Armd. Brigade ("Desert Rats"). (Walter Böhm)



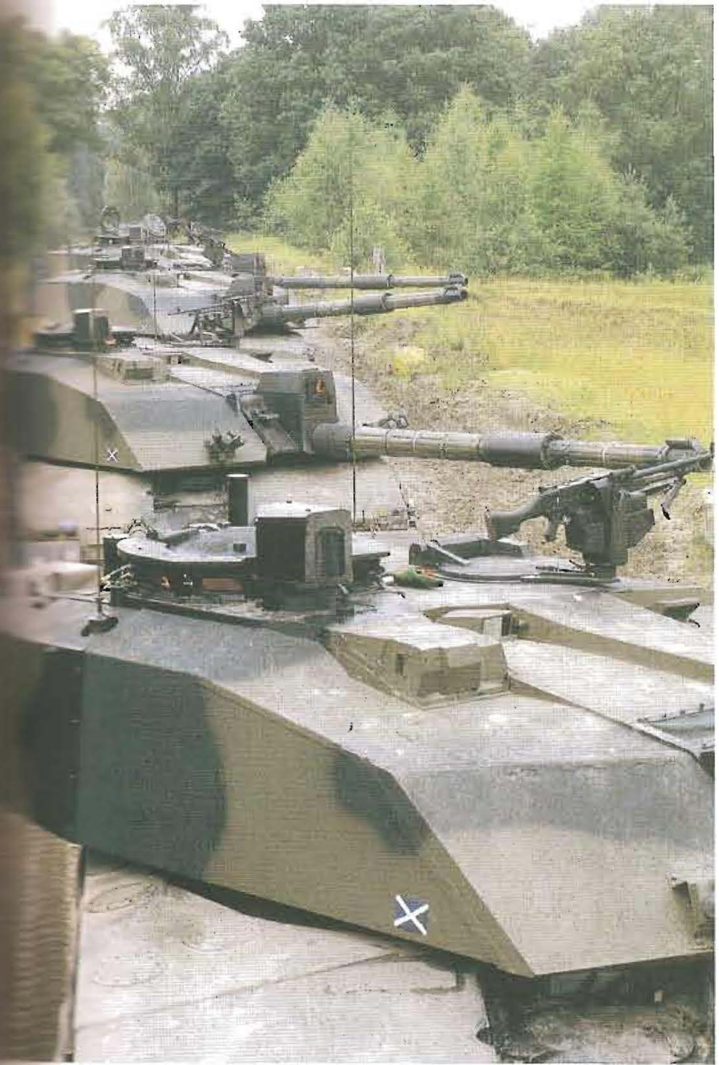
This Challenger 2 is fitted with the TEC (Thermal Exhaust Cowls), wartime equipment that reduces the thermal signature of the hot exhaust systems. The chassis can be camouflaged within seconds by rolling off the tarpaulin. On roads the heavy 62-ton Challenger can reach speeds up to 60



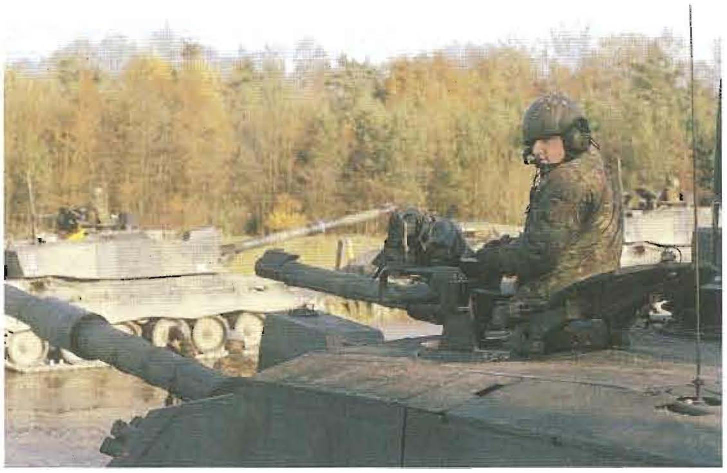
On roads the Challenger 2 has a range of up to 450 km (280 miles). The range drops to 250 km (155 miles) during cross-country travel. With the [illegible] mounted external fuel drums, the range increases by an additional [illegible] (44 miles). All Challenger 2 MBTs are fitted with mounts to carry two standard 200-liter (53-gallon) fuel drums on the rear hull. (Walter Böhm)



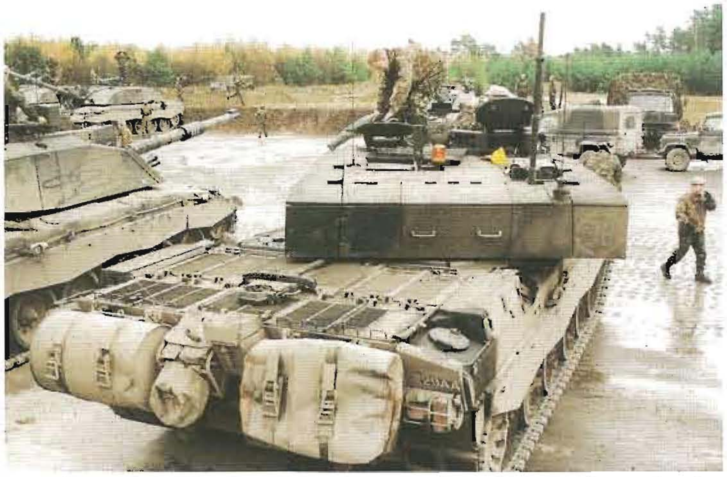
The Challenger's own fuel and refuel system is installed between the two diesel drums. This design allows every Challenger 2 to be fueled by another Challenger 2 tank, or to dispense fuel to other vehicles. Additionally, every tank is fitted with a water boiler for cooking the crew's meals and heating water for tea. (Walter Böhm)



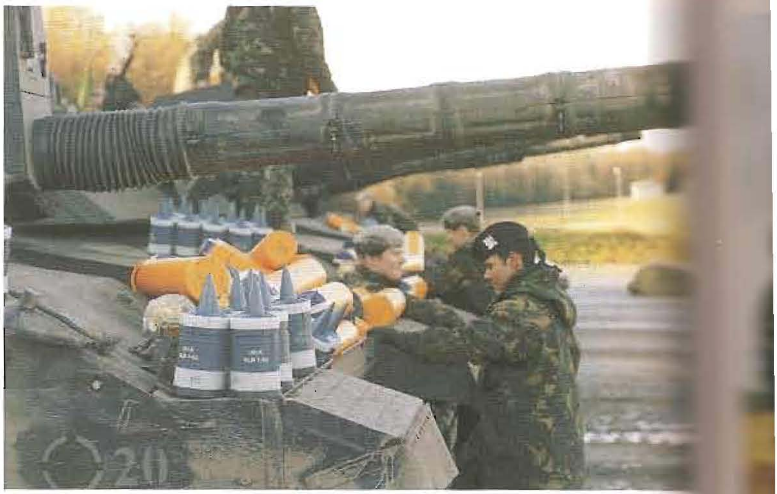
Close-up photo of the Challenger 2's new, completely redesigned turret. It is fitted with a new type of armor called the Dorchester armor system (Advanced Armour Technology). The tank commander has a stabilized panoramic sight that incorporates a Nd-YAG laser rangefinder. All-round vision is provided by eight connected visors. The gunner's TI view is available in the sight and on a relaxed-view monitor. The loader's position is fitted with a day periscope. (Walter Böhm)



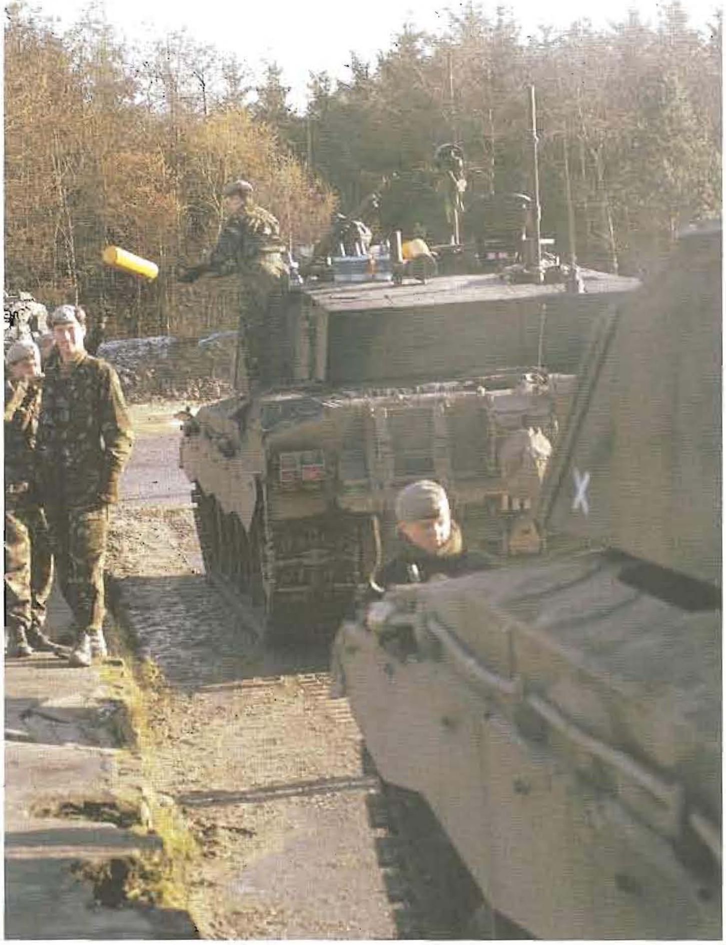
To give the crewmen more security when walking on the tank, the turret roof was coated with a non-skid surface. Along with live fire training, the Challenger 2 crewmen were instructed with the Precision Gunnery Training Equipment (PGTE) simulation system. With the help of the PGTE, the crew members can be taught a wide range of training missions, like gunnery, radio ops and tactics. (Walter Böhm)



The strong antenna behind the comnmander's cupola is for the live fire control system (Live Fire Monitoring Equipment – LFME). This equipment is not used under wartime conditions, but is an important element of the Challenger 2 training system. Mounted along with the antenna for the LFME is a special sensor for all kinds of weather information, such as wind speed, wind direction, temperature, air pressure and humidy. Prior to the addition of this sensor, the British armored units were dependent on the artillery for this data. (Walter Böhm)



The British Chieftain and Challenger 1 tanks, as well as the Challenger 2, use two-piece ammunition. The APDS training rounds eight kilograms (18 lb) and have a range of up to 1,500 meters yards). (Walter Böhm)



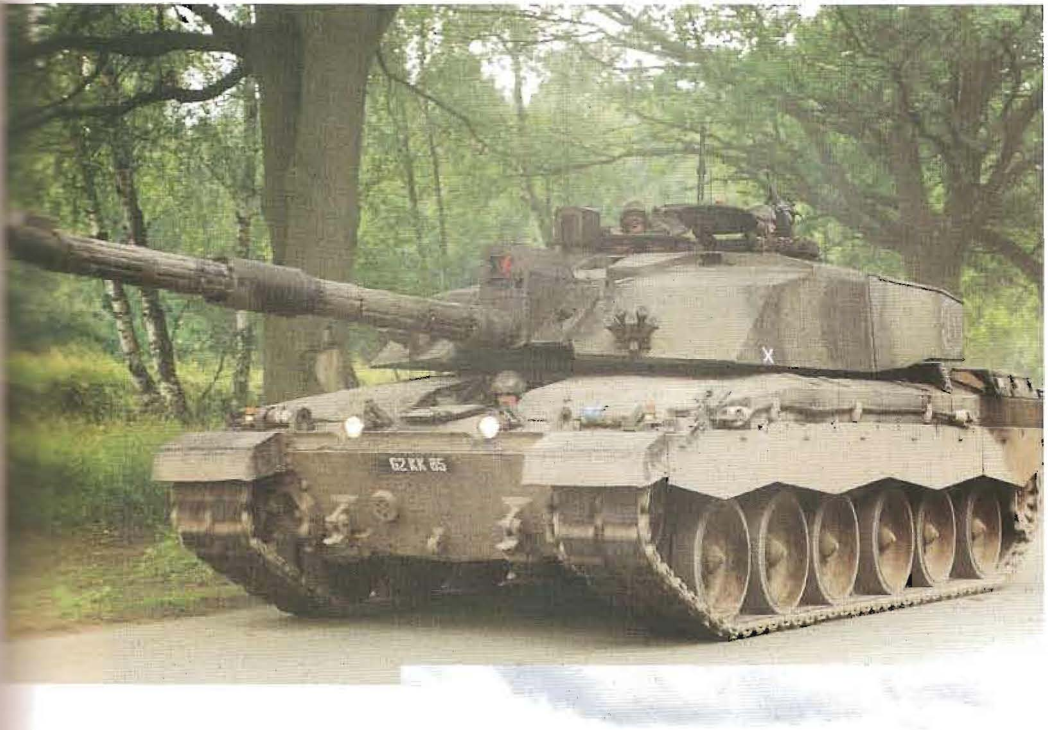
A tank crew from "C" Sqn., Scots DG labors during the up-arming of their Challenger 2. Notice the upgraded two-piece British tank ammunition. The ammunition stock of the Challenger 2 consists of 50 rounds, a mixture of APFSDS, HESH and smoke. The charge cases are stored in armored bins below the turret ring. (Walter Böhm)

The loader's cupola is fitted with a GPMG for ground and air def The Challenger 2 has a stock of 4,000 7.62mm rounds of ammuni different racks. (Walter Böhm)

"Challenger Firepower." Sec Troop of "C" Sq Scots DG tests th guns during a live fi exercise in Novem 1998 on NATO Ran 9 in the Bergen-Hoh area. The Ro Ordnance 55 calib L30 high-pressu rifled gun has a ran of up to nine kilomete

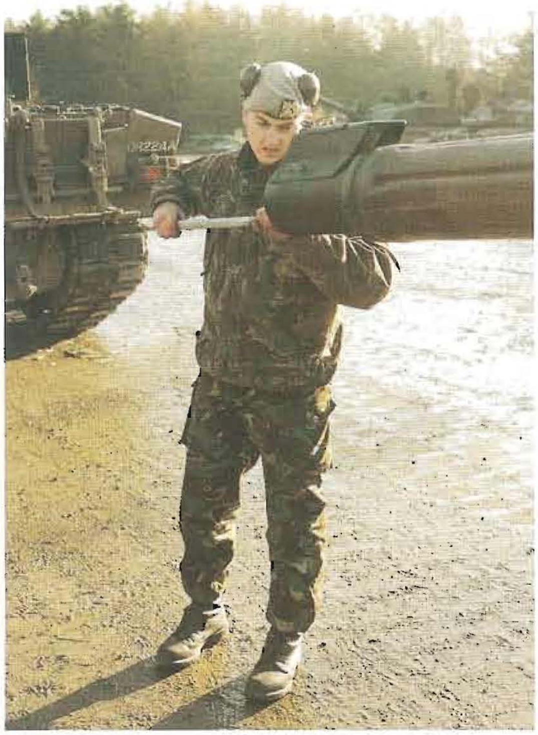
The Challenger 2 tank commander can select new targets while the gunner is shooting, which provides the tank with "hunter-killer" capability. The Challenger 2 can fire six rounds in 26 seconds, a rate of fire that gives hostile tank crew less than five seconds to change position. (Walter Böhm)

The SFIM for the Challenger 2 commander is mounted on the turret roof. This stabilized sight system is similar to the system mounted on the new French Leclerc MBT. With the SIFM, the tank commander has the ability to make a 360° observation without moving his head. (Walter Böhm)



The crew's positioning in the Challenger 2 turret is conventional: The commander sits on the right, the loader on the left, and the gunner below, in front of the commander's seat. Each position is provided with a lap-type seat belt. The commander's and gunner's cupolas have one-piece hatches that open to the rear. This Scots DG Challenger 2 (62KK85) is traveling on a road at the range at Bergen-Hohne, Germany. (Walter Böhm)

The appearance of the Challenger 2's hull is very similar to that of the Challenger 1. The new-style turret is different. however, since it represents the most modern technology in armor and tank production. (Walter Böhm)

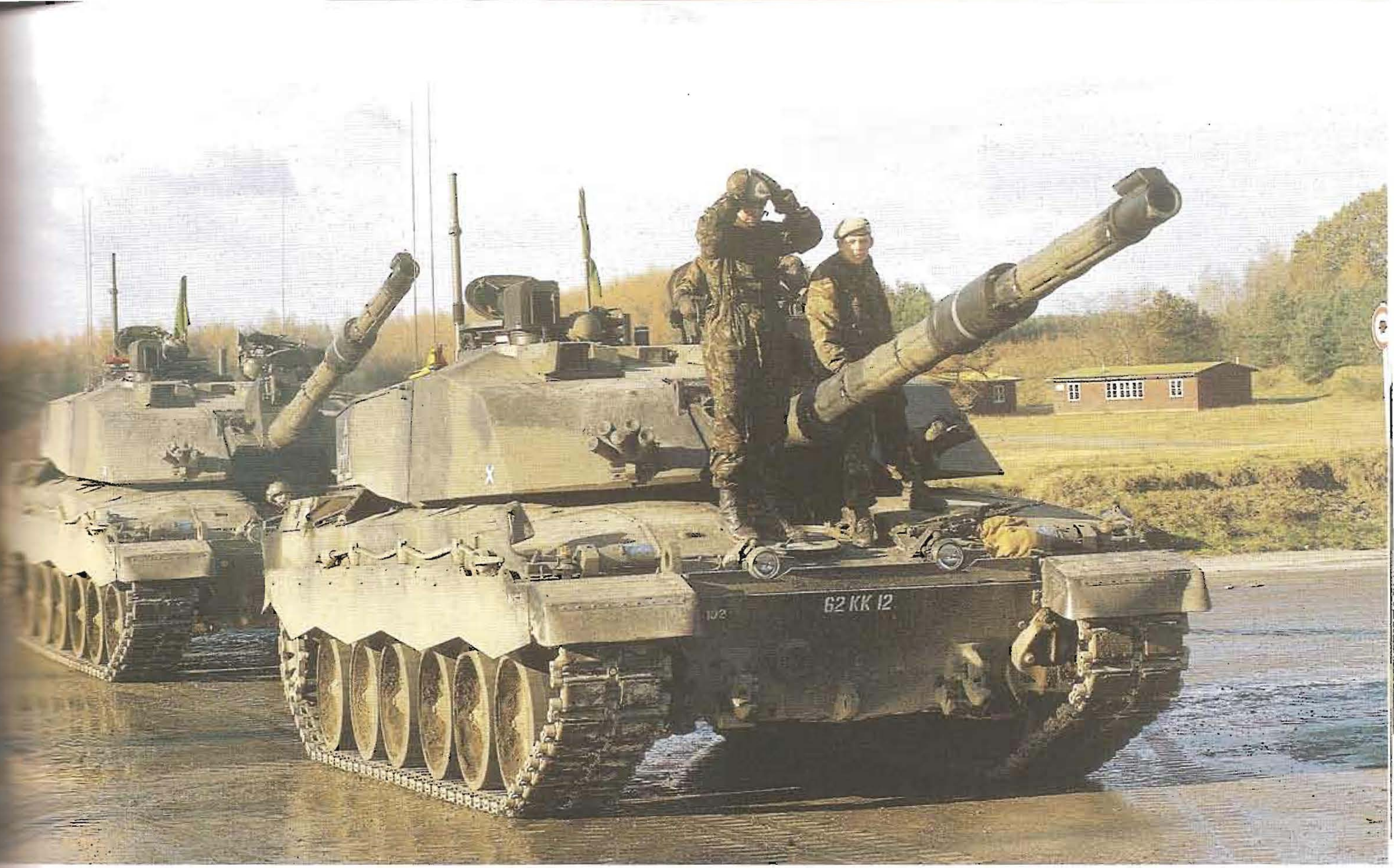


The Pilkington Optronics thermal-imaging sight system is mounted above the 120mm L30A1 gun. It is the same system that is mounted on the former Challenger 1, but it is upgraded with fewer parts and improved reliability. (Walter Böhm)

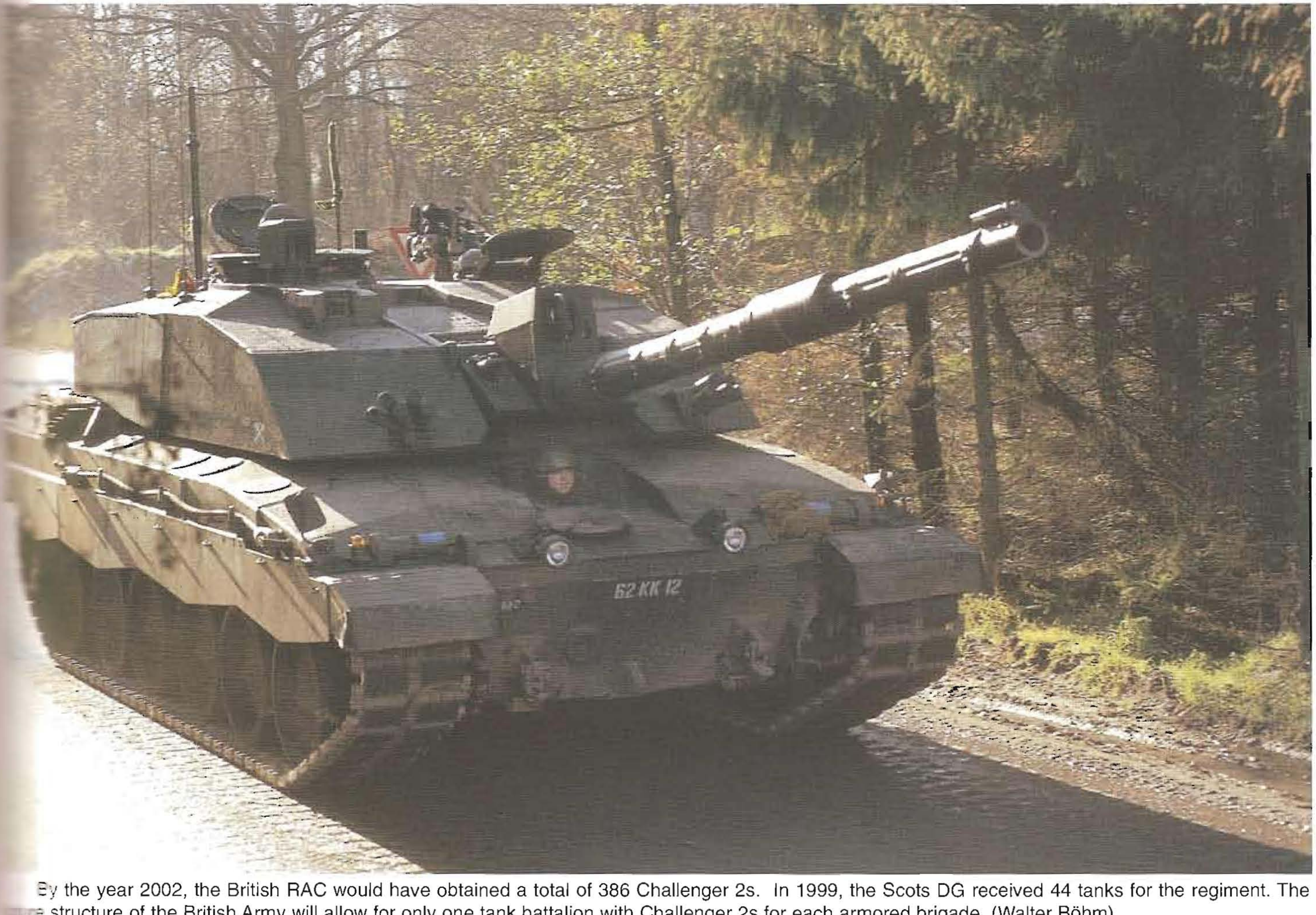
Scots DG Challenger 2 (c/s "Two Zero") from "C" Sqn. at NATO Range 9 in Bergen-H before a battle run. Fully equipped, the Challenger 2 weighs 62 tons. It is the heaviest NATO's tank fleet. (Walter Böhm)

The development of the Challenger 2 began in 1988. Nine trial vehicles were built. It was the British RAC's intention to train the tank crews as well as possible for the most modern British main battle tank. (Walter Böhm)

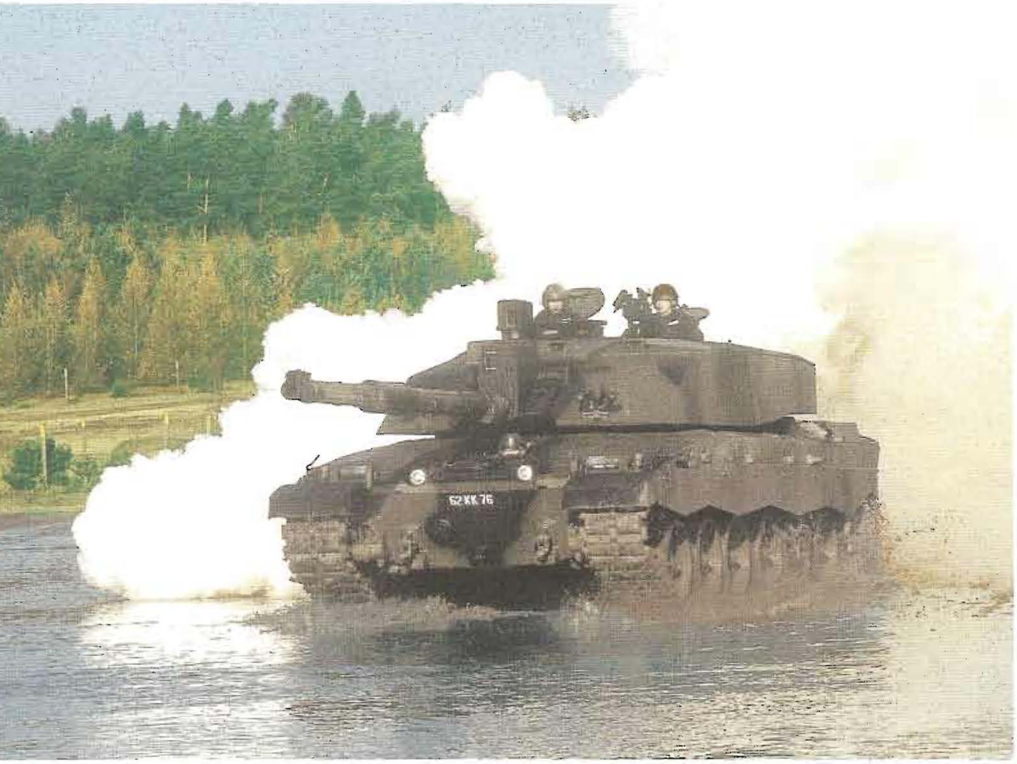
The heart of Challenger 2's control system is upgraded version the newest generat of digital computer fro Canadian Computi Devices. The system a modernized vers of the computer used



The first serial Challenger 2 left the production line in 1992. In contrast to the first trial vehicles, all line-produced tanks were fitted with wavy-edged side rs. By mid-1999, the Scots DG, who are based in Fallingbostel, Germany, were completely equipped with the Challenger 2. (Walter Böhm)



By the year 2002, the British RAC would have obtained a total of 386 Challenger 2s. In 1999, the Scots DG received 44 tanks for the regiment. The re structure of the British Army will allow for only one tank battalion with Challenger 2s for each armored brigade. (Walter Böhm)



The 2nd RTR received their first Challenger 2s in November 1998. To cover a tank's position on the move, every tank can produce smoke by injecting diesel fuel into the engine's exhaust system. This Challenger 2, which wears registration number "62KK76", was one of the first new tanks delivered to the 2nd RTR. The 2nd RTR is part of 7th Armd. Bde., which is based in Fallingbostel, Germany. This brand new tank, which came directly from the Vickers production lines to the 2nd RTR, wears no tactical markings. (Walter Böhm)

"Man and machine." The driver of Challenger is positioned in the front of the in a semi-prone position. As a result of construction, the tank's silhouette is very (Walter Böhm)

In July 1991, the UK Ministry of Defense placed an order for Challenger 2 tanks and an additional 13 driver training vehicles. This order was completed in July 1994 by a contract for 259 more tanks, total of 386 MBTs. With this fleet, eight regiments can be equipped Challenger 2s. A stock of 82 tanks stand by for reserve and training. Challenger 2 is participating in the Scots DG's annual crew test in Nove 1998 in Bergen-Hohne. (Walter Böhm)

As of 1999, only the 1st (UK) Armd. Div. (based in Germany) has the new Challenger 2 MBT. In the inventory of the 1st (UK) Armd. Div., with its 4th, 7th and 20th Armd. Bdes., a total of 250 Challenger 1s and 2s are in

1st (UK) Armoured Division
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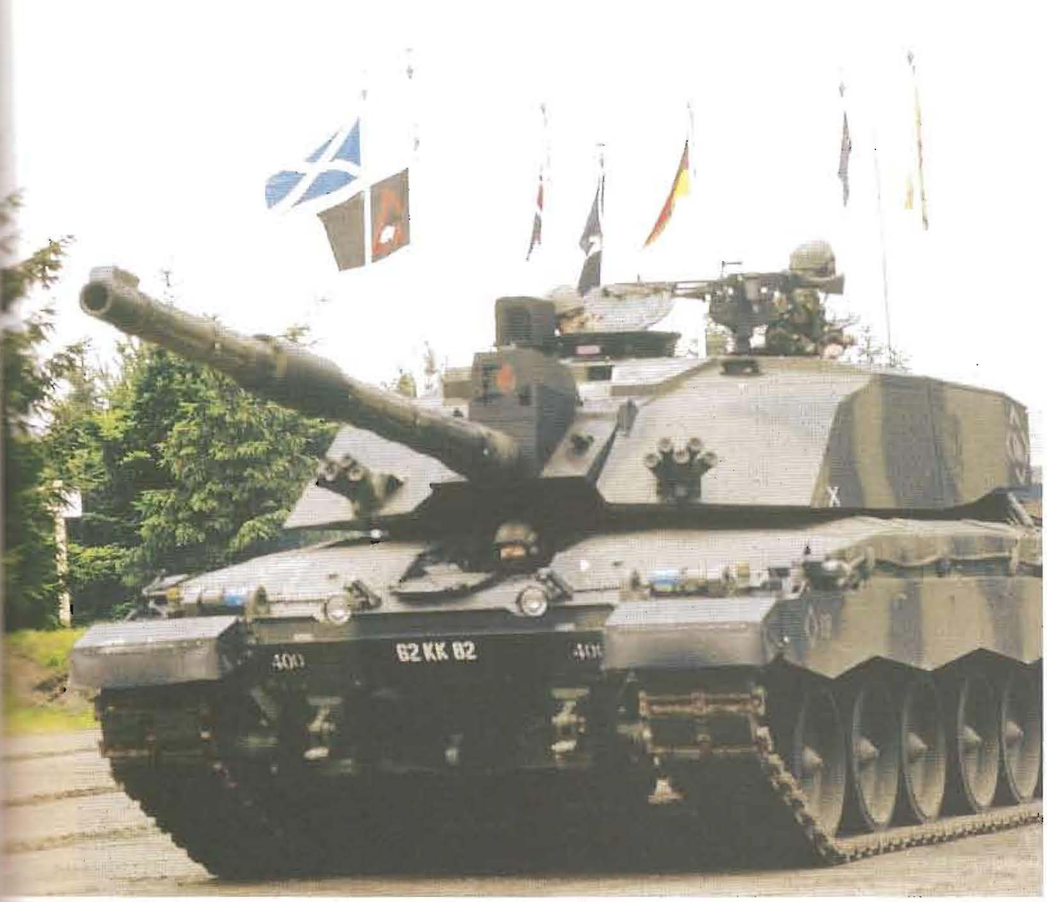
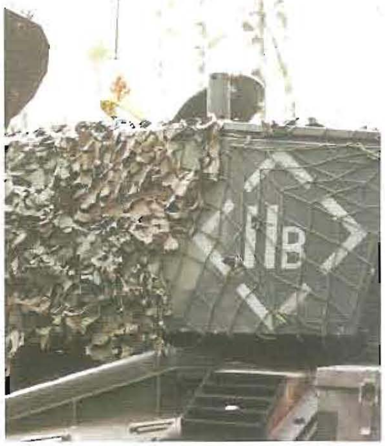
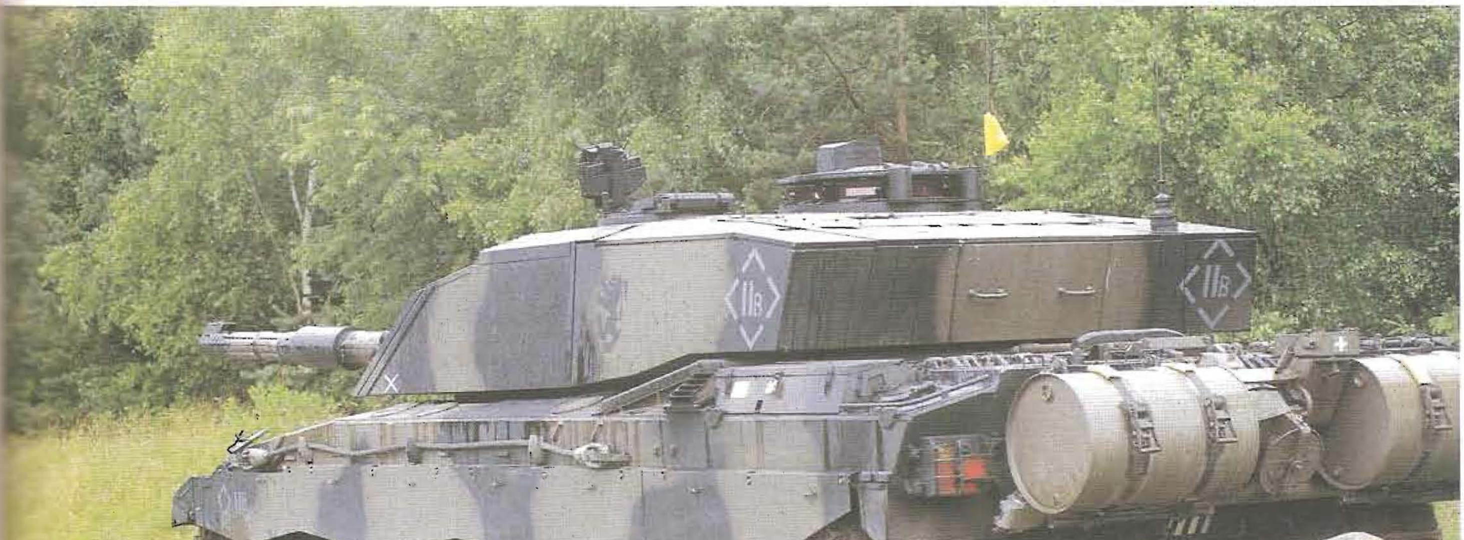


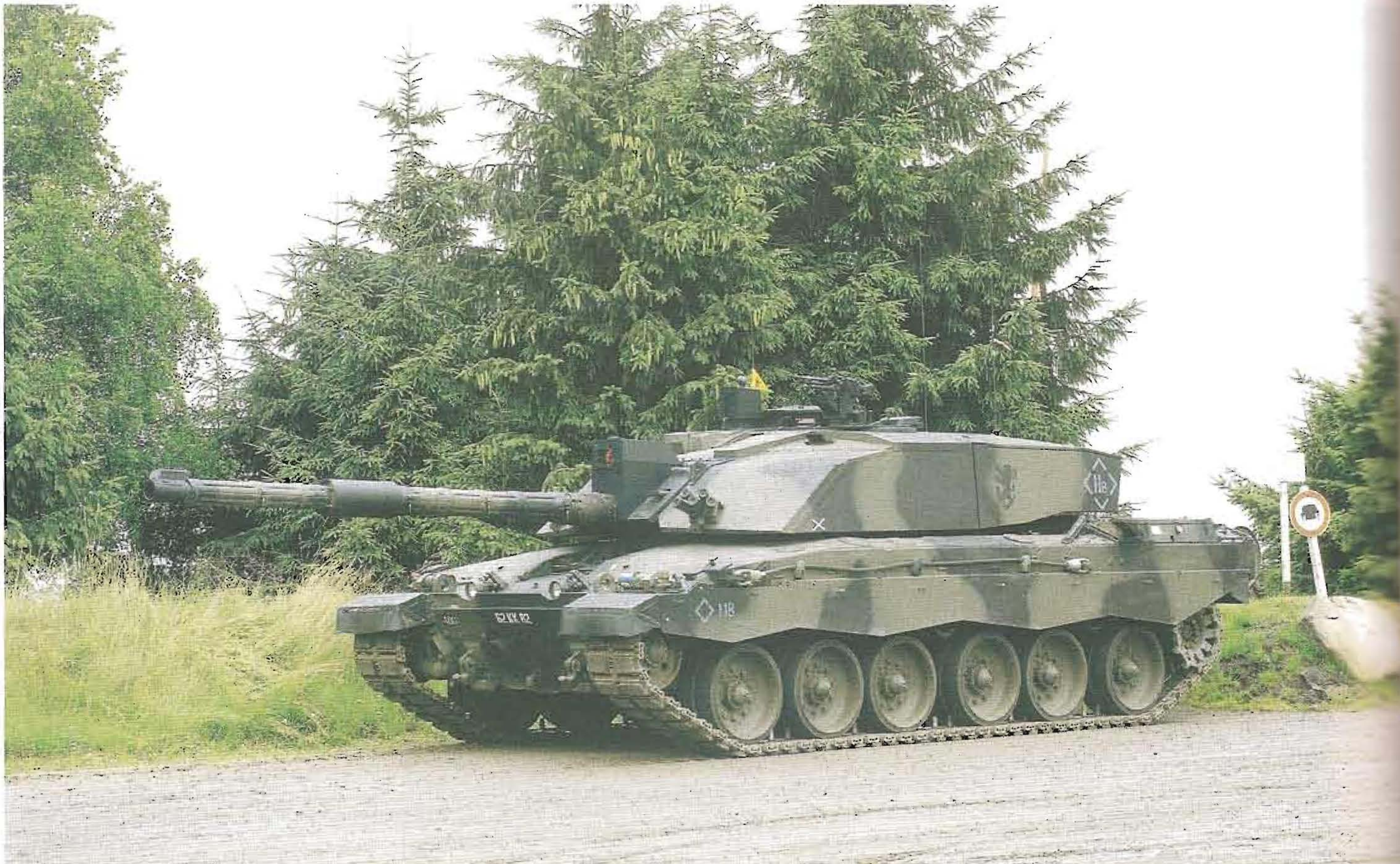
Positioned below the waving flags of the Scots DG is the regiment commander's Challenger 2, "Lion pant" (Lion of Scotland), with the vehicle registration number "66KK82" and the Zap sign "400" displayed he hull. The Scots DG is a Scottish regiment formed in 1678 on the order of King Charles. The Scots DG a total of 558 soldiers and is commanded by a Lieutenant-Colonel. (Walter Böhm)



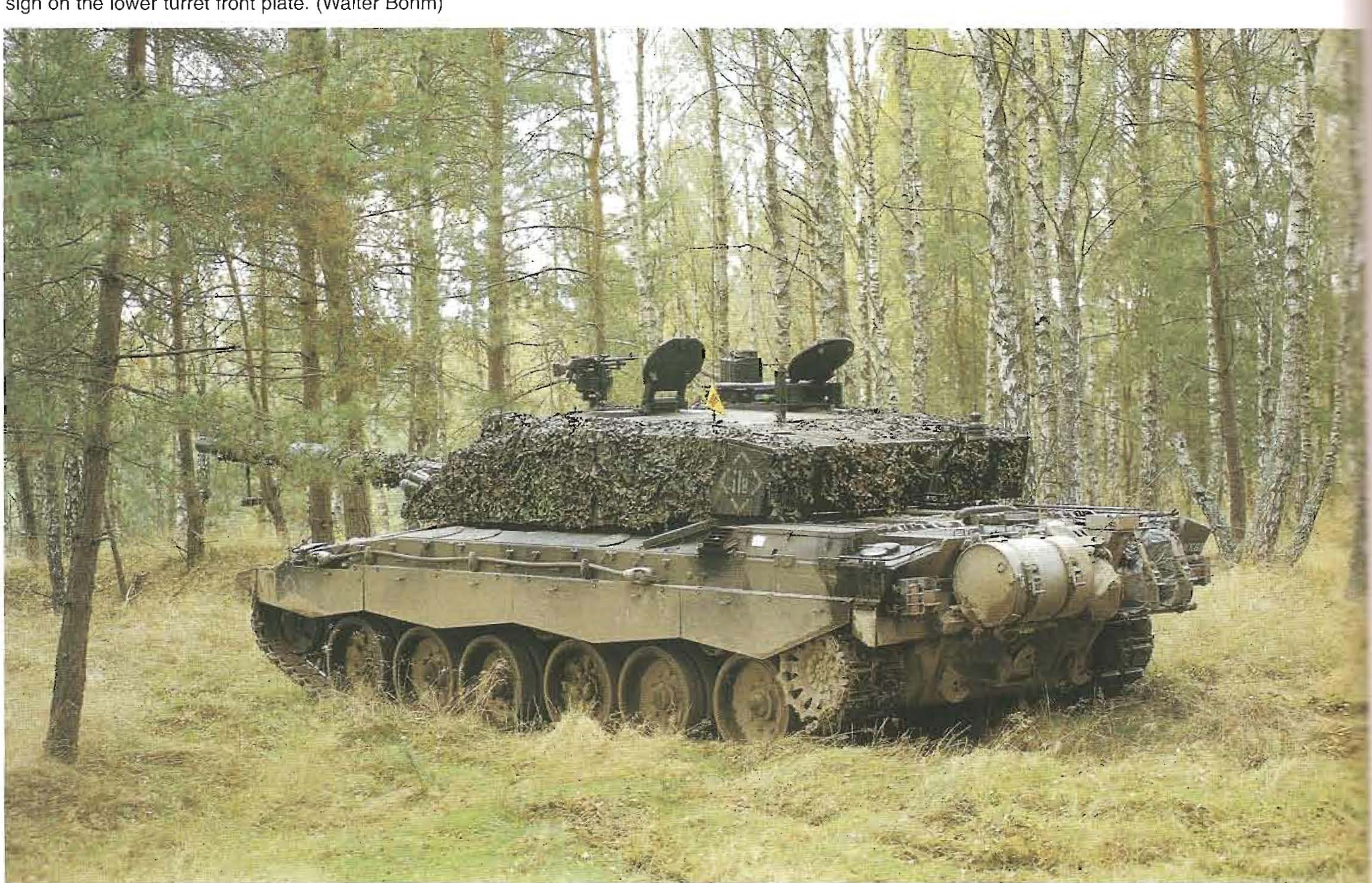
This close-up of the turret of the Scots DG commander's tank shows a pennant featuring the "Lion Rampant" insignia and the "Two Bravo" call sign. (Walter Böhm)

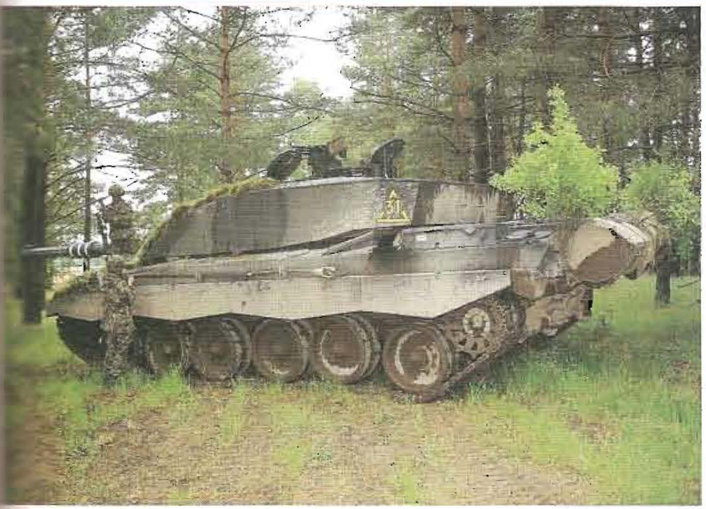


Three-quarter view of the commander's Challenger 2. In the center of the enormous turret you can see the subdued version of the "Lion Rampant" bol. The radio call sign "Two Bravo" is painted on both sides of the turret, the right rear turret side and on both side skirts. (Walter Böhm)

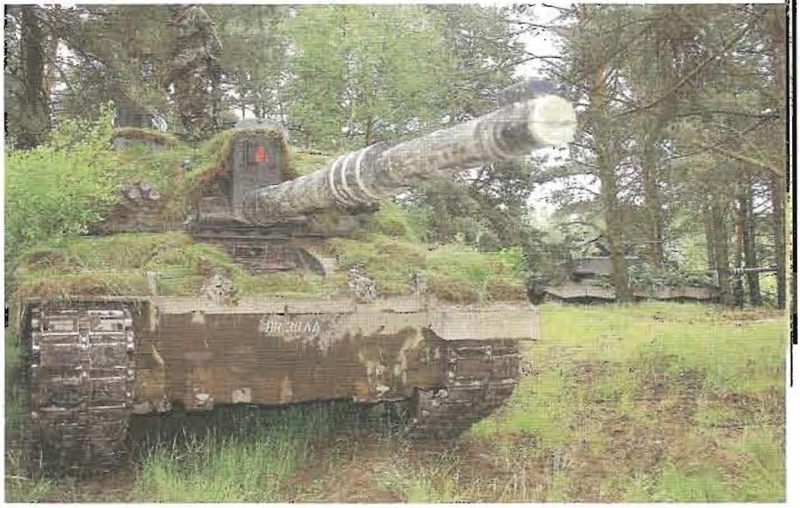


Front view of the "Lion Rampant", the commander's tank of the command troop. Notice the Scottish flag – the St. Andrew's Cross – and the Scots
sign on the lower turret front plate. (Walter Böhm)

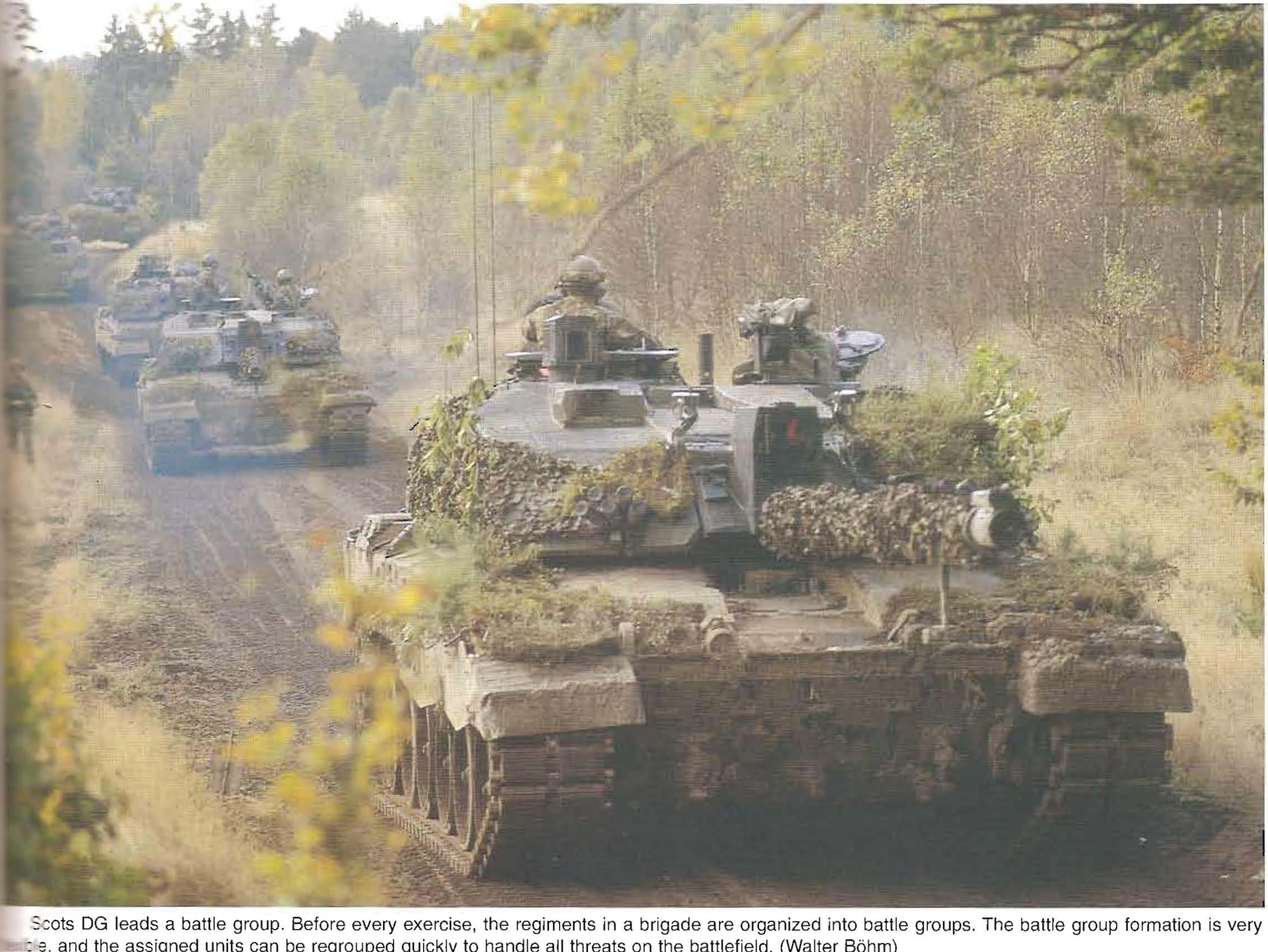




During Exercise "Prairie Eagle 99" in DPTA, Poland , the 2nd RTR fielded a Challenger 2 squadron for the first time. The c/s "Three One" and the "A" Sqn. symbol are painted in yellow on both sides of the turret, on the rear of the turret and on the front of the side skirts. Being positioned in the woods, the crew camouflaged their Challenger 2 with branches and shrubbery. (Walter Böhm)



n the 7th Armd. Bde., the 2nd RTR is the Scots DG's partner unit. Just hose in the Scots DG, the Challenger 2s from 2nd RTR also wear the Jerboa of the "Desert Rats" on the fire control system box. The three s on the 120mm L30 rifled gun is a symbol for the third troop in "A" Sqn. er Böhm)



Scots DG leads a battle group. Before every exercise, the regiments in a brigade are organized into battle groups. The battle group formation is very le, and the assigned units can be regrouped quickly to handle all threats on the battlefield. (Walter Böhm)

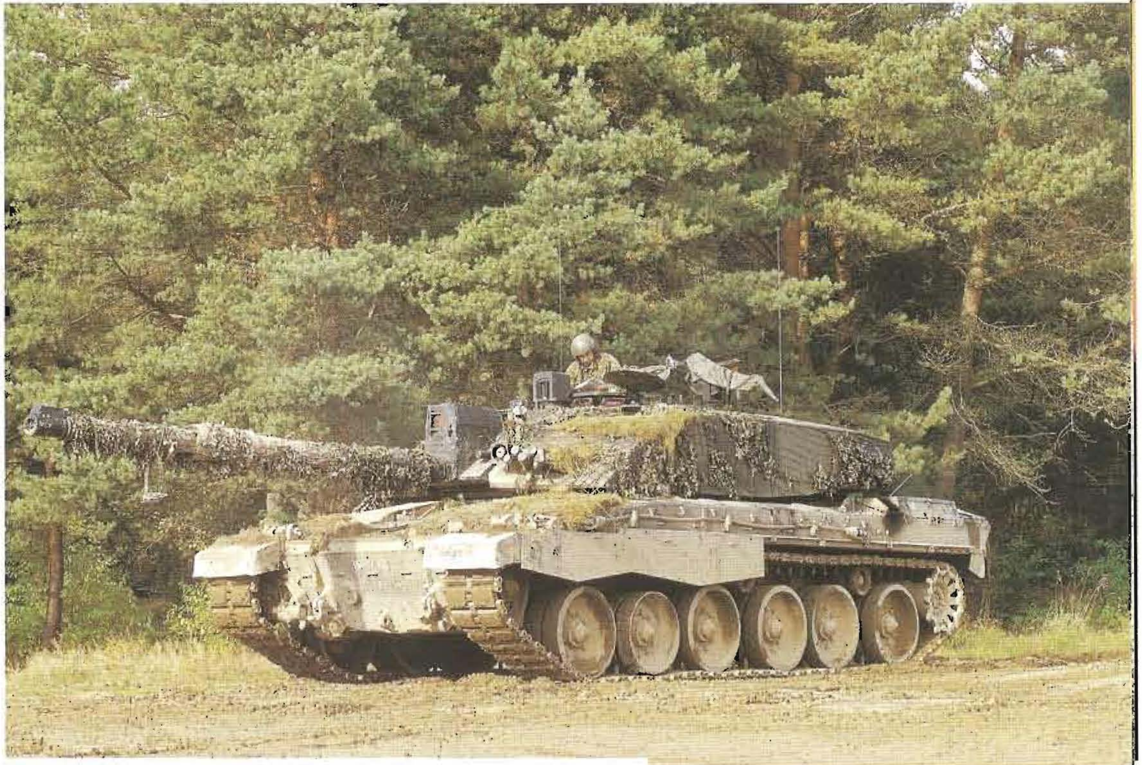
Challenger battle group. Based on an organization of one armored squadron and two mechanized companies, a typical battle group fighting a defensive battle on the FEBA (Forward Edge of Battle Area) would contain 600 soldiers and up to 80 APCs and 16 MBTs. (Walter Böhm)

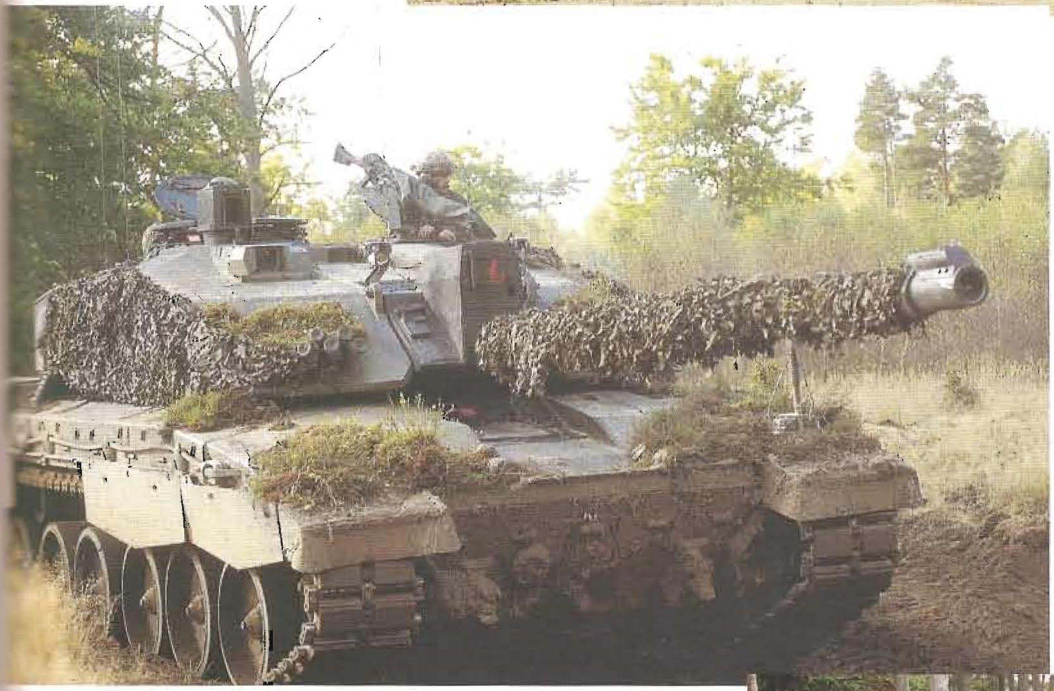
"Sabre of the Battle Group"- the Challenger 2. A brigade can be divided into four battle groups. On the division level, up to 12 battle groups can be formed. Here a Scots DG Challenger 2 advances toward "Object Gold" during "Ulan Eagle 99". (Walter Böhm)

Each battle group is divided into smaller units called combat teams or combat groups. A combat team is commanded by a major and contains two tank troops, each with three Challenger 2s, and two infantry platoons, each with four Warrior APCs, and some additional support elements. (Walter Böhm)

"Teamwork." The typical components for an armored battle group in the 1st (UK) Armd. Div. are an armored squadron with 12 Challenger 2s, two mechanized companies with 15 Warrior APCs, a re

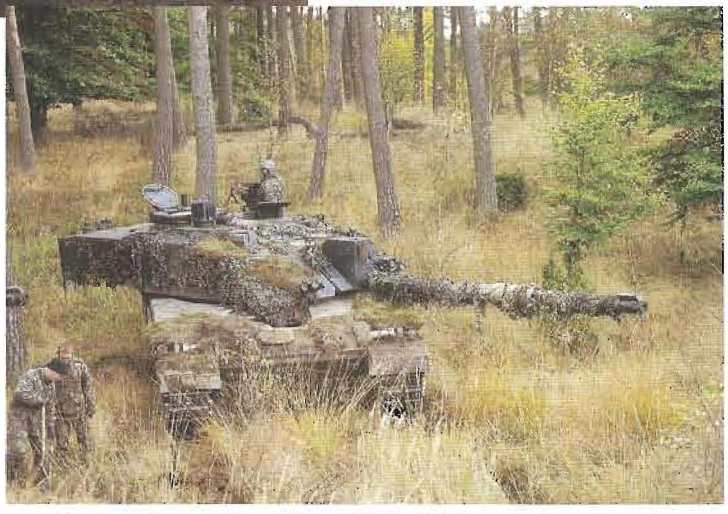
Although the hull and automotive ts of the Challenger 2 are based on of its predecessor, the Challenger he new tank incorporates over 150 rovements aimed at increasing bility and maintainability. (Walter m)





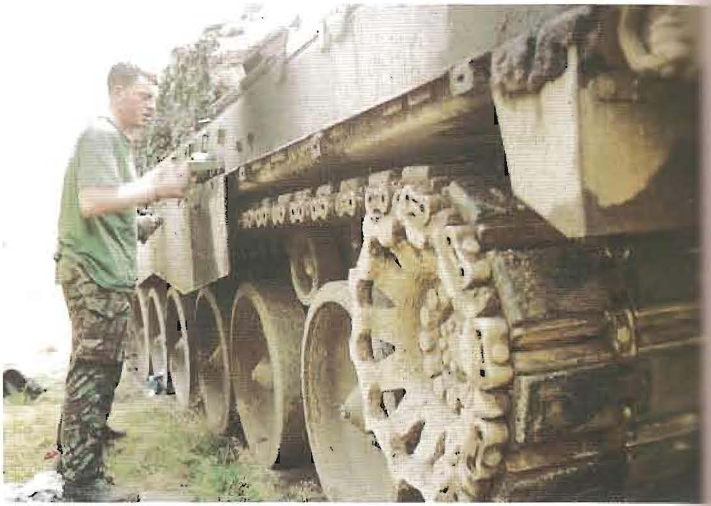
The Challenger 2's Royal Ordnance L30 120mm rifled gun operates with a wide range of today's tank ammunition, including the new rounds with depleted uranium. The improved armored and shaped turret protects the crew against hostile rounds. (Walter Böhm)

The Challenger 2 is fitted with the TN-54 epicyclic gearbox nufactured by David Brown. The tank has six forward and two reverse ars. (Walter Böhm)



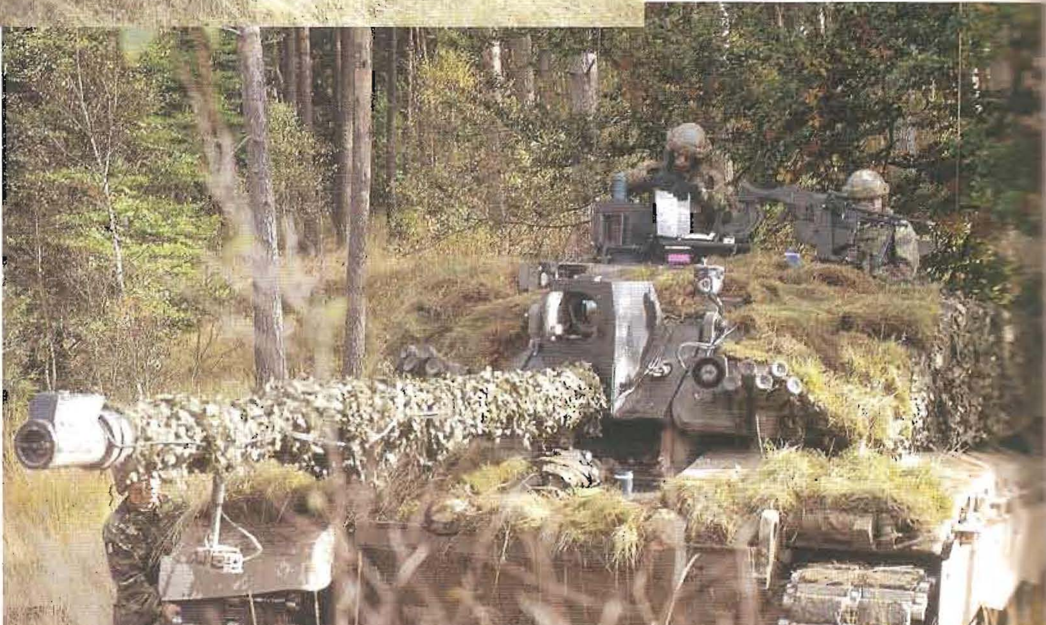
Masters of camouflage. Since WWII, British tanks have been famous for their excellent camouflage. The crew of this Scots DG Challenger 2 have camouflaged their tank very well. With branches, mud, turf and camouflage netting, the tank is perfectly adapted to the terrain of the DPTA in Poland. (Walter Böhm)

The Challenger 2 completed its Reliability Growth Trial (RGT) in 1994. During this trial, three tanks were tested over a total of about 285 battlefield days. (Walter Böhm)



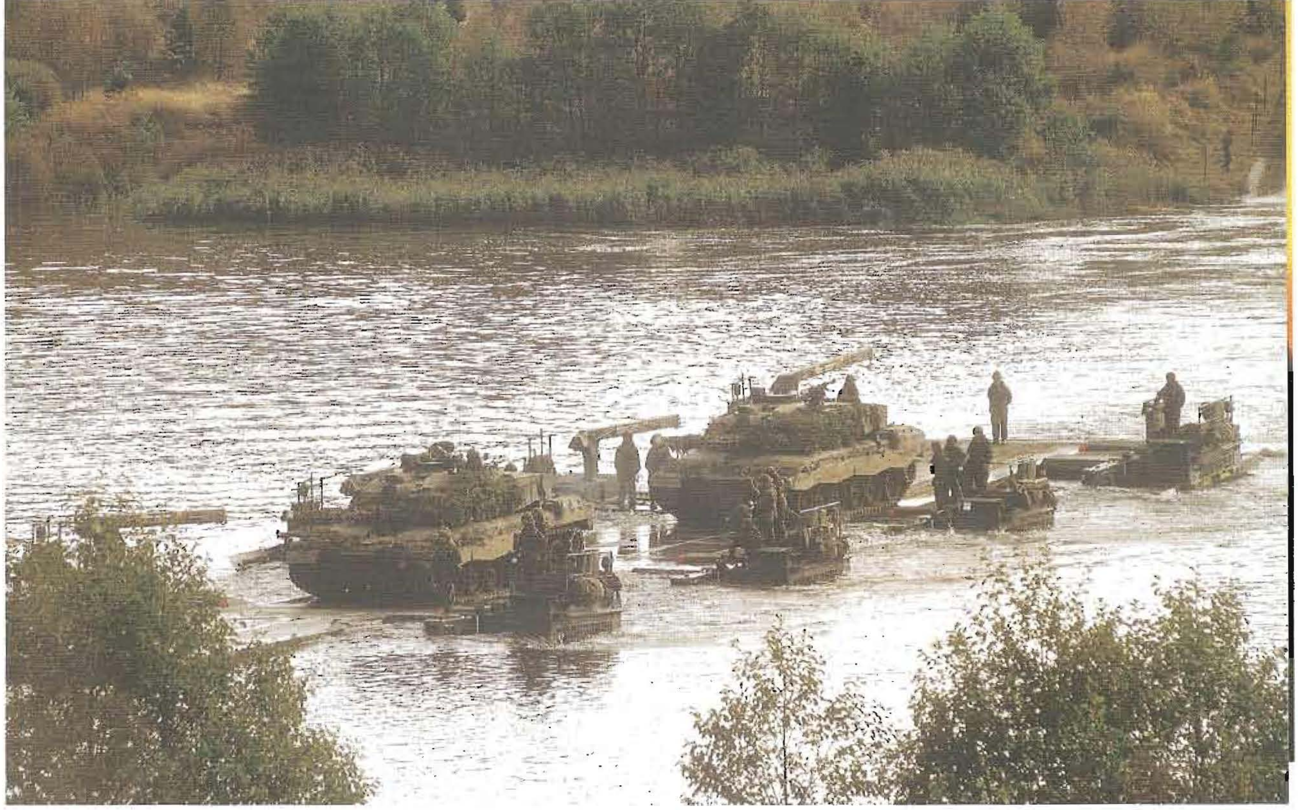
A new 650-millimeter wide hydraulically adjusted double pin track has been developed for the Challenger 2. The first trial vehicles were partially fitted with the older Challenger 1 tank track during the tests. (Walter Böhm

For the purposes of the trials, a battlefield day consisted of 27 km ([illegible] miles) of road travel, 33 km (20.5 miles) of cross-country travel, the firing of [illegible] 120mm rounds and 1,000 7.62mm machine gun rounds, 16 hours of weapon system operation, 10 hours of running the main engine and 3.5 hours of running the main engine while driving. (Walter Böhm)

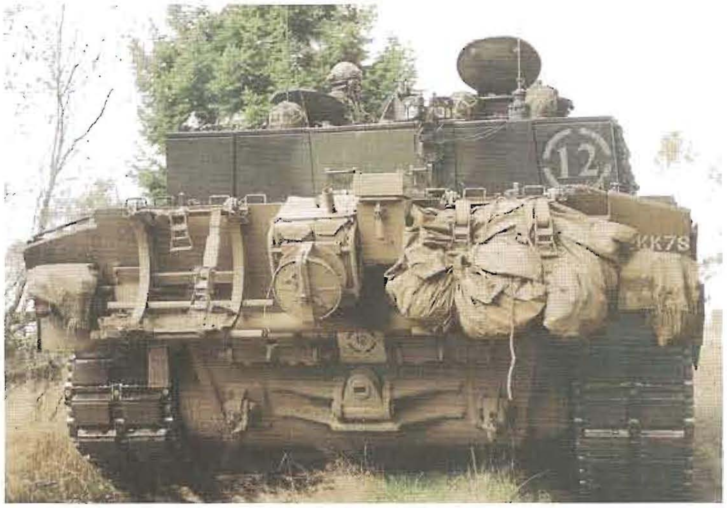


For self-protection, the crew can use the two banks of five L8 smoke grenade dischargers on each side of the turret. For soft skinned targets there is a Hughes 7.62mm chain gun

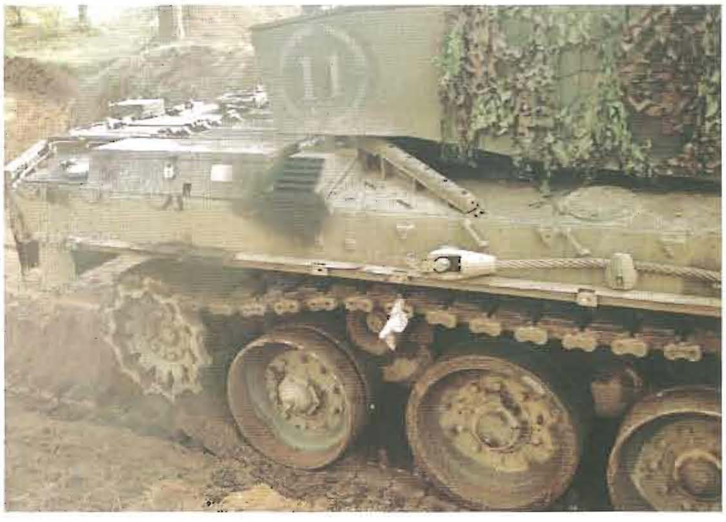
Challenger 2s alk on water" with the p of M3 amphibious rries of the 23rd nphibious Engineer uadron, which is sed in Hameln, rmany. A two-bay ry is able to carry e Challenger 2 MBT LC 70). Here four "Riks" carry two allenger 2s over a e at DPTA. (Walter hm)



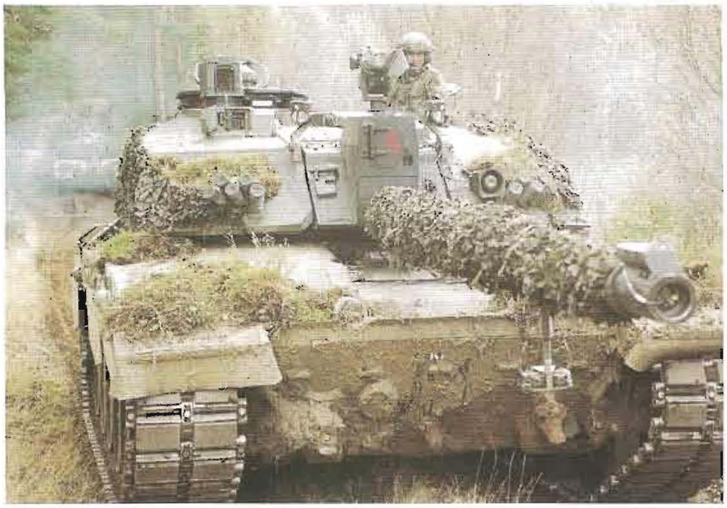
In the Allied Command Europe Rapid Reaction Corps (ARRC), Great ain is one of the leader nations. Britain provides the ARRC with two chanized divisions, the 1st (UK) Armd. Div. and the 3rd (UK) Infantry Div. e Challenger 2s from the Scots DG are under the command of the 7th d. Bde. as a part of the 1st (UK) Armd. Div. In the future, the army will restructured and there will be only 38 tanks in a regiment, which is ded into three squadrons. (Walter Böhm)



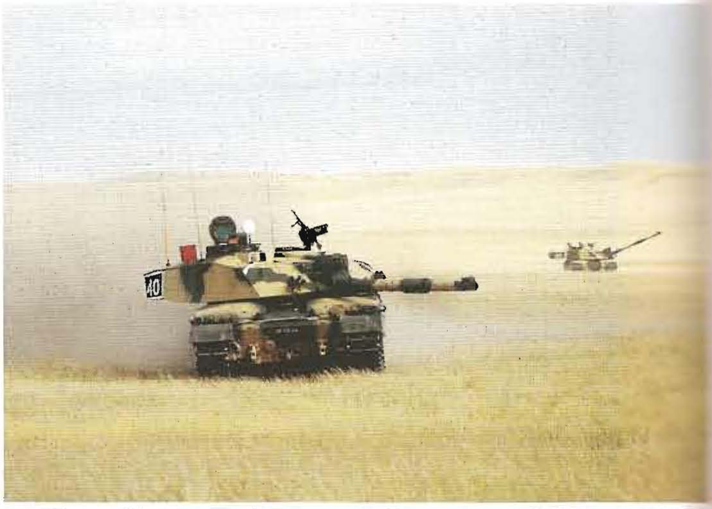
The design of the basic hull of the Challenger 2 is very similar to the Challenger 1. To make daily maintenance easier, the Challenger 2's hull received a few modifications. The black number "12" in a circle on a white base, the tactical sign of "C" Sqn., and the radio call sign can be lit up in the dark. This makes it easier for another tank to follow it in a convoy. The lights on the left and right rear of this Challenger 2 are camouflaged with cloth. (Walter Böhm)



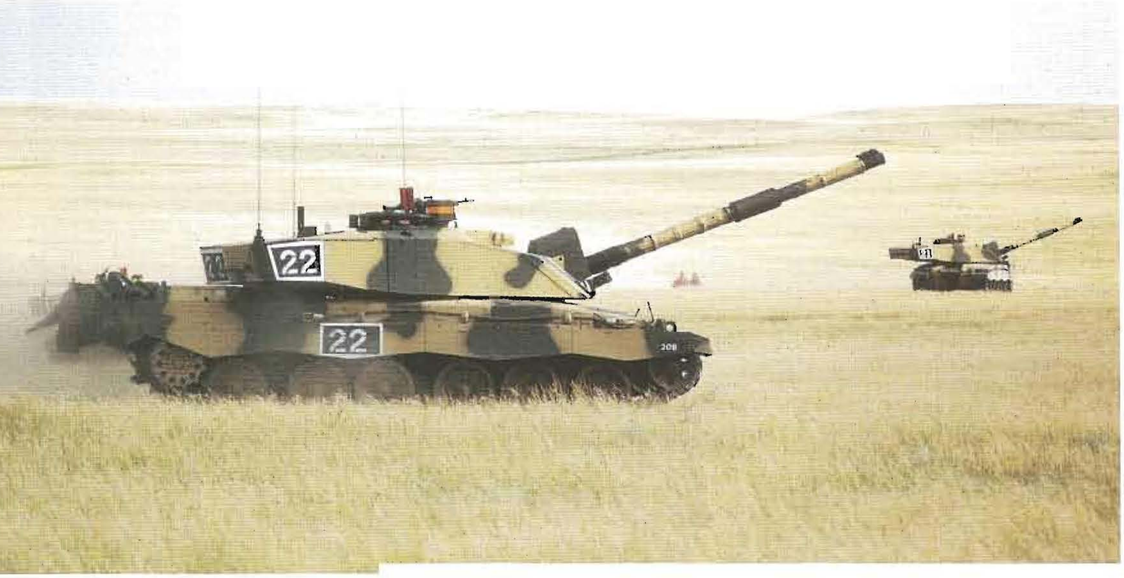
During Exercises "Prairie Eagle" and "Ulan Eagle", both soldiers and teriel were stretched to the limits of their performance. The Challenger 2 ssis has the same layout as that of the Challenger 1, with six aluminum d wheels, drive sprocket at the rear, idler at the front, and two track return ers on either side. (Walter Böhm)



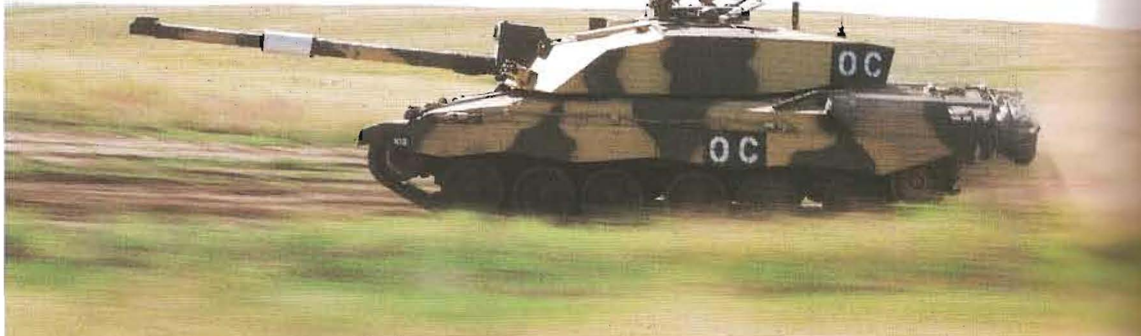
During the "Prairie Eagle" and "Ulan Eagle" maneuvers, all combat vehicles were fitted for the first time with the Direct Fire Effect Simulators (DFWES), shown here on a Scots DG Challenger 2. The DFWES is similar to the US MILES and the German AGDUS laser-provided fire simulation systems. (Walter Böhm)



Here a Challenger 2 (c/s "40" from "B" Sqn., Scots DG) commanded by SSGT Turnbull takes active part in Exercise "Snow Goose" in July 1999. This exercise was a part of the "Medicine Man 3" maneuvers. Only the Challenger regiments based in Germany had the opportunity to train at BATUS in Canada. Scots DG Challenger 2 tanks first saw action in BATUS during the "Medicine Man 3" maneuvers. This three-week exercise was split into a series of different live fire exercises for two mechanized companies, two armored squadrons, an engineer troop, and an artillery battery. During the final week, a battle group exercise with live fire conditions was held. (SSGT McFarlane)

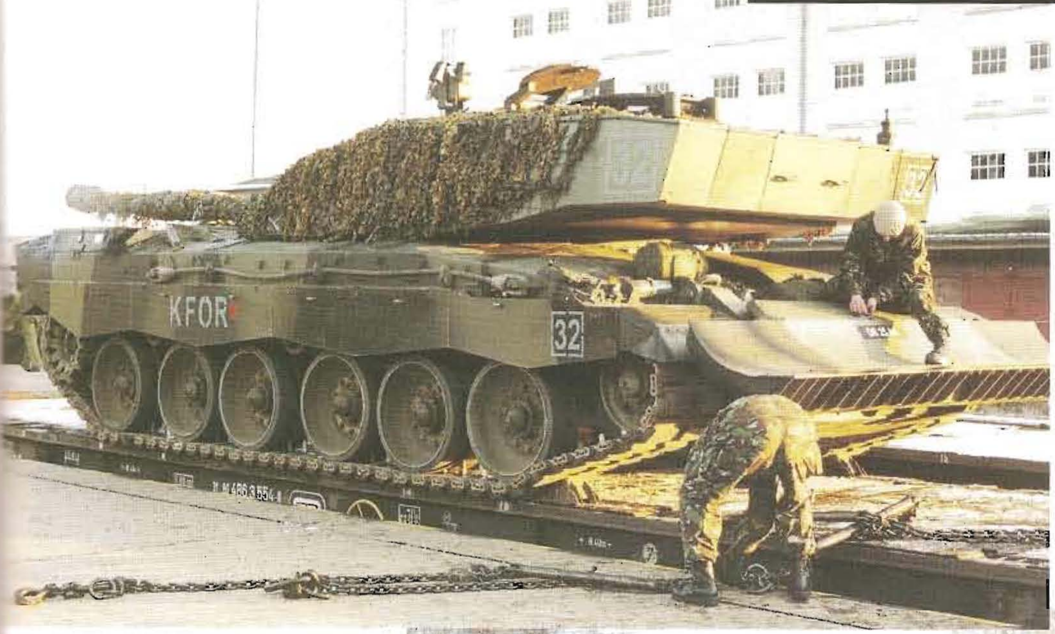


Call sign "22", Troop Cpl., 2nd Troop, "B" Sqn., Scots DG at Exercise "Medicine Man 3", BATUS, Canada, July 1999. This tank is at "Red Check Fire", the gun barrel being elevated for range safety. BATUS is located on the Canadian prairie near Calgary. At BATUS, each vehicle is given an individual number or "Zap code" for easier identification during the training. Ahead of the c/s "22", at the very front of the side skirt, the Zap code "208" is painted white on a black background. The BATUS exercise featured Challenger 2 tanks painted in sand yellow with dark green stripes. The radio call sign "22" is painted in white numbers on black rectangles on each mid-side panel and on the turret sides and rear. (SSGT McFarlane)

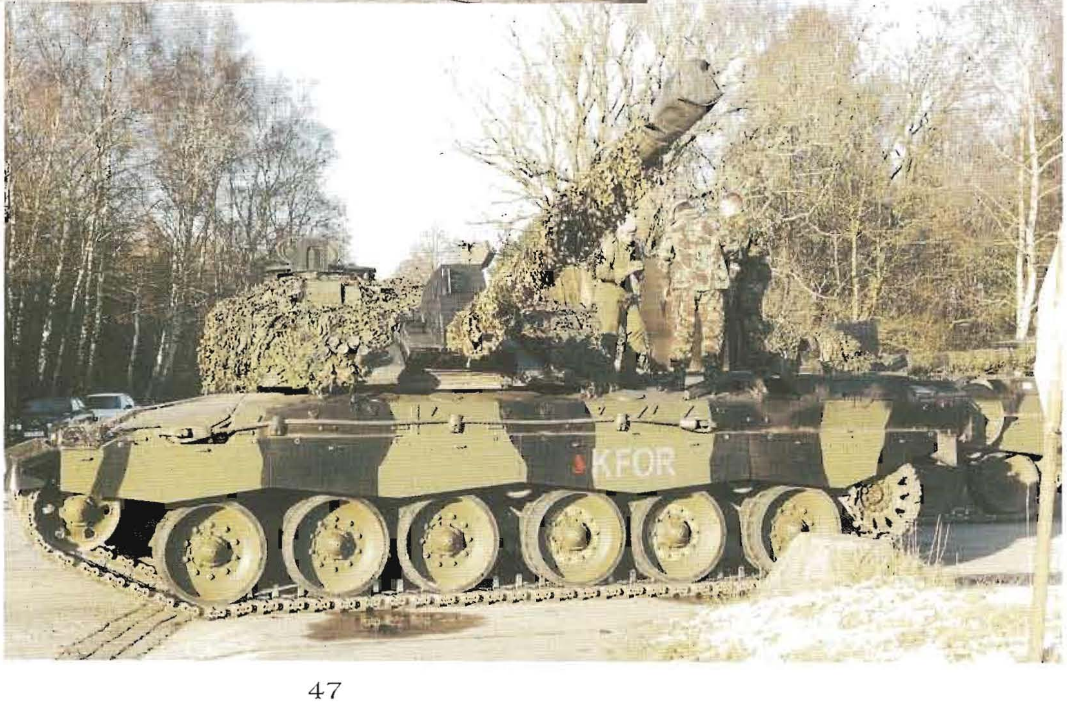


"High Speed" – a Challenger 2 of "A" Sqn., Scots DG during "Medicine Man 3". The c/s "Zero Charlie" (0C) indicates the second-in-command of an armored squadron. This tank wears the Zap code number "102". Since 1971 the British Army has trained in the huge unpopulated 1,609-square kilometer (1,000-

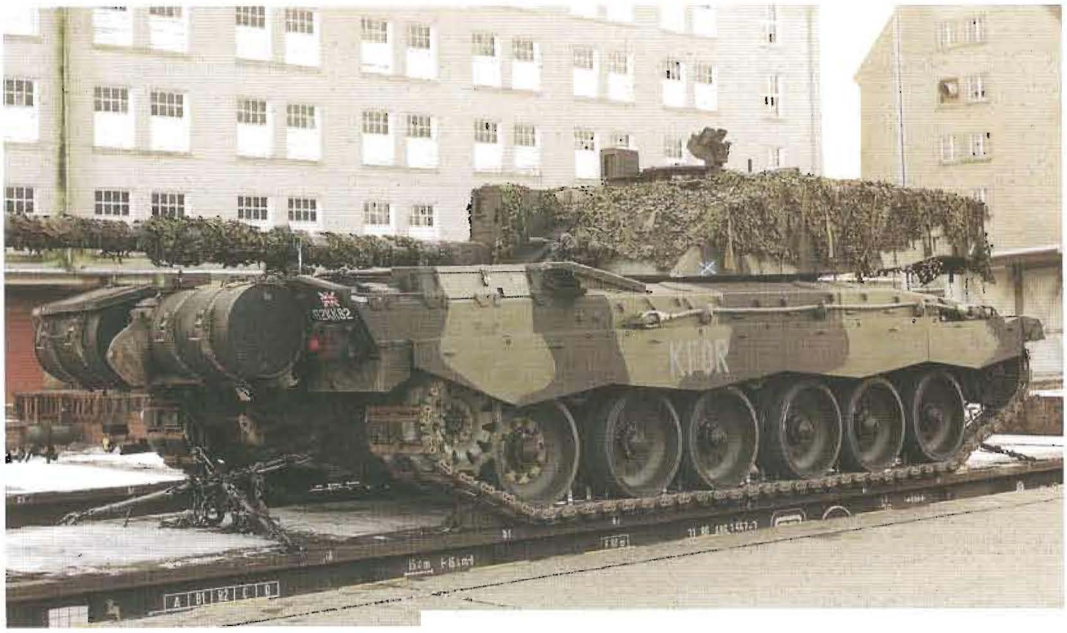
Sunset in the Canadian prairie. Here a Challenger commander readies his GPMG at BATUS. The British forces' annual live fire ammunition consumption at BATUS amounts to 3,000 tons. (Roger Lortie)



"Out of the Area." On January 24, 2000, "B" Sqn. of Scots DG, 7th Armd. Bde. ("Desert Rats"), 1st (UK) Armd. Div., which is based in Fallingbostel, Germany, loaded their Challenger 2 MBTs on the German Bundesbahn railroad for transport to the overseas harbor of Emden. From Emden the armored vehicles were shipped to Kosovo. Elements of the 7th Armd. Bde. would take the place of the 4th Armd. Bde. units in Kosovo. All Challenger 2s from "B" Sqn., Scots DG were marked with "KFOR" stenciling on their side skirts. Only the tank with c/s "Three Two" is equipped with the dozer blade kit. (Michael Neumann)

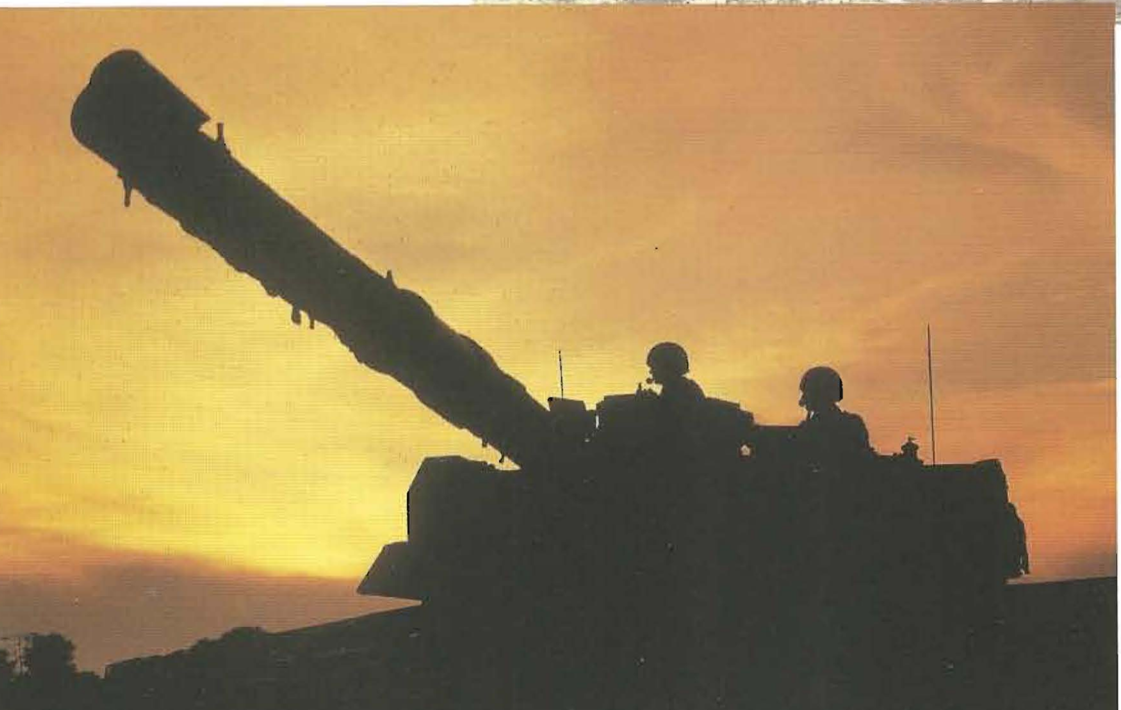


This Challenger 2 from "B" Sqn., cots DG has only gray KFOR arkings and a small red Jerboa ainted on the skirts. The crew is aking the final preparations for the ilway transport to the Emden harbor. ichael Neumann)



Only the small rectangle and the c/s "One One Bravo" on the first front side skirt indicates that this tank belongs to the commander of "B" Squadron. Notice the St. Andrews cross of Scotland – the insignia of the Scots DG – on the turret plate. The KFOR stenciling is painted in grey on the third side skirt. Above the rear light is the vehicle's registration number (66KK82) and the British national colors, the Union Jack. The additional fuel tanks are mounted, and the whole turret is covered with a camouflage net. (Michael Neumann)

"Flying Challenger." This unique photograph, which was taken by British Media Ops photographer Roger Lortie, proves that Challengers really can fly! (Roger Lortie)



It's been a long road from the first British Mark 1 tank to the Royal Armoured Corps Challenger 2. But the human aspect of armored warfare is still in the background after all these years. A tank on the battlefield has the job of protecting its crew so they can win the fight. With this in mind, the development of better tanks is still in progress. Perhaps the common Challenger MBT

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